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January 18, 1985

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

Subject: Byron Generating Station Units 1 and 2
Technical Specifications
NRC Docket Nos. 50-454/455

Dear Mr. Denton:

Enclosed are proposed additions and revisions to the current Byron 1 Technical Specifications. These new specifications are necessary for the issuance of the Technical Specifications which will be incorporated into the Byron full-power operating licenses. Prompt NRC review is requested. These changes were discussed with the NRC Staff at a meeting in Bethesda on January 15, 1985.

The attached specifications correct certain typographical errors existing in the current Byron 1 Technical Specfications, make revisions found to be necessary during the startup test program, and incorporate the necessary specifications so that the Byron 2 operating license can also reference the next version of the Technical Specifications. Each attachment contains an explanation of the individual changes. We are available at your convenience to discuss these matters further.

One signed original and fifteen copies of this letter and the attachments are provided for NRC review.

Very truly yours,

T. R. Tramm

T. R. Tramm
Nuclear Licensing Administrator

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cc: Byron Resident Inspector
Mr. Calvin Moon
Mr. Ed Butcher

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ATTACHMENTS

Attachment 2

Ultimate Heat Sink

1. L.C.O. 3.7.5.d (page 3/4 7-5)

The 85°F water temperature allowed time for the operator to start the fans following an accident condition. With all 4 fans running in high speed the new temp of 98°F is an acceptable value per the design basis.

The 85°F temperature is an unacceptable limit for summertime, 100% power operations.

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PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.5 Two independent ultimate heat sinks (UHS) cooling towers shall be OPERABLE, each with

a. A minimum water level in the UHS cooling tower basin of 873.75 ft msl (86% of total volume),

b. Four OPERABLE cooling tower fans (0A, 0B, 0E, 0F for U1),

c. One OPERABLE essential service water makeup pump per train,

d. An essential service water pump discharge temperature of less than or equal to 80°F with less than 4 fans running in high speed; or less than or equal to 98°F with all 4 fans running in high speed,

e. A minimum Rock River water level at or above 670.6 feet mean sea level, USGS datum, at the river screenhouse, and

f. Two OPERABLE deep wells with:

(1) Rock River water level forecast by National Weather Service to exceed 702.0 feet msl, or

(2) Rock River water level at or below 670.6 ft msl, or

(3) Tornado watch issued by National Weather Service that includes Byron site area.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

a. With a water level of less than 873.75 ft msl (86% of total volume) in either UHS cooling tower basin, restore the water level to 873.75 ft msl in each UHS cooling tower basin within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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

c. With one essential service water makeup pump inoperable, restore the essential service water makeup pump 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.

ATTACHMENT 3

RCS FLOWRATE

1. Reactor Trip Inst. Table (pg. 2-5)

   Change "≥90% of loop design flow*" to "≥90% of loop minimum measured flow*" in item 12, Trip Setpoint.

   Change "≥89.2% of loop design flow*" to "≥89.2% of loop minimum measured flow*" in item 12, Allowable Value.

   Change "*Loop design flow" to "*Minimum measured flow" at the bottom of the page.

   The RCS flowrate requirement which appears in the Tech Specs should be the minimum measured flowrate, as used in the Improved Thermal Design Procedure, which already takes into account the flow measurement uncertainties assumed in the safety analysis. This minimum measured flow is four times the loop flow of 97,600 or 390,400 gpm.

   When the RCS flowrate was originally determined for Tech Specs it was assumed that the 390,400 was the thermal design flow to which the uncertainties must be added. As a result the RCS flowrate currently in Tech Specs is much more conservative than actually required. Therefore it is requested that the Tech Spec RCS Flowrate be revised to 390,400 gpm.

2. T.S. 3.2.3 (pg. 3/4 2-8) RCS flowrate

   Change "399,000" to "390,400" in LCO 3.2.3 a.

3. Bases for RCS flowrate (pg. B3/4 2-4)

   Replace B3/4 2-4 with the attached page.

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (SE)	TRIP SETPOINT	ALLOWABLE VALUE
12. Reactor Coolant Flow-Low	2.5	1.77	0.6	≥90% of loop ~~design flow*~~ Minimum measured flow*	≥89.2% of loop ~~design flow*~~ minimum measured flow*
13. Steam Generator Water Level Low-Low	27.1	18.28	1.5	≥40.8% of narrow range instrument span	≥39.1% of narrow range instrument span
14. Undervoltage - Reactor Coolant Pumps	12.0	0.7	0	≥5268 volts - each bus	≥4728 volts - each bus
15. Underfrequency - Reactor Coolant Pumps	14.4	13.3	0	≥57.0 Hz	≥56.5 Hz
16. Turbine Trip					
a. Emergency Trip Header Pressure	N.A.	N.A.	N.A.	≥540 psig	≥520 psig
b. Turbine Throttle 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.
18. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	N.A.	N.A.	N.A.

~~*Loop design flow - 97,600 gpm~~

*Minimum Measured flow

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POWER DISTRIBUTION LIMITS

3/4.2.3 RCS FLOW RATE AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR

LIMITING CONDITION FOR OPERATION

3.2.3 Indicated Reactor Coolant System (RCS) total flow rate and $F^N_{\Delta H}$ shall be maintained as follows for four loop operation.

a. RCS Total Flowrate ≥ ~~390,000~~ 390,400 gpm, and

b. $F^N_{\Delta H} \leq 1.55\ [1.0 + 0.3\ (1.0-P)]$

where:

Measured values of $F^N_{\Delta H}$ are obtained by using the movable incore detectors. An appropriate uncertainty of 4% (nominal) or greater shall then be applied to the measured value of $F^N_{\Delta H}$ before it is compared to the requirements, and

$$P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$$

APPLICABILITY: MODE 1.

ACTION:

With RCS total flow rate or $F^N_{\Delta H}$ outside the region of acceptable operation:

a. Within 2 hours either:

1. Restore RCS total flow rate and $F^N_{\Delta H}$ 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.

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Replace with attached page B 3/4 2-4

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

c. The control rod insertion limits of Specification 3.1.3.6 are maintained, and

d. The axial power distribution, expressed in terms of AXIAL FLUX DIFFERENCE, is maintained within the limits.

A rod bow penalty is not applied to the final value of $F^N_{\Delta H}$ for the following reason:

$F^N_{\Delta H}$ will be maintained within its limits provided the Conditions a. through d. above are maintained. The combination of the RCS flow requirement (399,000 gpm) and the requirement on $F^N_{\Delta H}$ guarantee that the DNBR used in the safety analysis will be met.

Fuel rod bowing does reduce the value of the DNBR. However, predictions with the methods described in WCAP-8691, Revision 1, "Fuel Rod Bow Evaluation," July 1979 for the 17x17 Optimized Fuel Assemblies indicate that the fuel rod bow reduction on DNBR will be less than 3% at 33,000 MWD/MTU assembly average burnup. At higher burnups, the decrease in fissionable isotopes and the buildup of fission product inventory more than compensate for the rod bow reduction in DNBR.

There is a 11% margin available between the 1.32 and 1.34 design DNBR limits and the 1.47 and 1.49 safety analysis DNBR limit. Use of the 3% fuel rod bow DNBR margin reduction still leaves a 8% margin in DNBR between design limits and safety analysis limits.

The RCS flow requirement is based on the loop flow rate of 97,600 gpm which is used in the Improved Thermal Design Procedure described in FSAR 4.4.1 and 15.0.3. This design value is then increased by 2.2% for measurement uncertainties. The measurement error for RCS total flow rate is based on performing a precision heat balance and using the results to calibrate the RCS flow rate indicators. Potential fouling of the feedwater venturi, which might not be detected, could bias the results from the precision heat balance in a non-conservative manner. Therefore, a penalty of 0.1% has been included in the 2.2% measurement uncertainty of the RCS flow rate. Any fouling which might bias the RCS 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 fouling shall be quantified and compensated for in the RCS flow rate measurement, or the venturi shall be cleaned to eliminate the fouling.

Surveillance Requirement 4.2.3.4 provides adequate monitoring to detect possible flow reductions due to any rapid core crud buildup.

Surveillance Requirement 4.2.3.5 specifies that the measurement instrumentation shall be calibrated within seven days prior to the performance of the calorimetric flow measurement. This requirement is due to the fact that the drift effects of this instrumentation are not included in the flow measurement uncertainty analysis. This requirement does not apply for the instrumentation whose drift effects have been included in the uncertainty analysis.

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

c. The control rod insertion limits of Specification 3.1.3.6 are maintained, and

d. The axial power distribution, expressed in terms of AXIAL FLUX DIFFERENCE, is maintained within the limits.

(move)

A rod bow penalty is not applied to the final value of $F^N_{\Delta H}$ for the following reason:

$F^N_{\Delta H}$ will be maintained within its limits provided the Conditions a. through d. above are maintained. The combination of the RCS flow requirement (~~399,000~~ 390,400 gpm) and the requirement on $F^N_{\Delta H}$ guarantee that the DNBR used in the safety analysis will be met.

Fuel rod bowing does reduce the value of the DNBR. However, predictions with the methods described in WCAP-8691, Revision 1, "Fuel Rod Bow Evaluation," July 1979 for the 17x17 Optimized Fuel Assemblies indicate that the fuel rod bow reduction on DNBR will be less than 3% at 33,000 MWD/MTU assembly average burnup. At higher burnups, the decrease in fissionable isotopes and the buildup of fission product inventory more than compensate for the rod bow reduction in DNBR.

There is a 11% margin available between the 1.32 and 1.34 design DNBR limits and the 1.47 and 1.49 safety analysis DNBR limit. Use of the 3% fuel rod bow DNBR margin reduction still leaves a 8% margin in DNBR between design limits and safety analysis limits.

The RCS flow requirement is based on the loop minimum measured flow rate of 97,600 gpm which is used in the Improved Thermal Design Procedure described in FSAR 4.4.1 and 15.0.3. A precision heat balance is performed once each cycle and is used to calibrate the RCS flow rate indicators.

cations. Potential fouling of the feedwater venturi, which might not be detected, could bias the results from the precision heat balance in a non-conservative manner. Therefore, a penalty of 0.1% is assessed for potential feedwater venturi fouling. A maximum measurement uncertainty of 2.2% has been included in the loop minimum measured flowrate to account for potential undetected feedwater venturi fouling and the use of the RCS flow indicators for flowrate verification. Any fouling which might bias the RCS 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 fouling shall be quantified and compensated for in the RCS flow rate measurement, or the venturi shall be cleaned to eliminate the fouling.

Surveillance Requirement 4.2.3.4 provides adequate monitoring to detect possible flow reductions due to any rapid core crud buildup.

Surveillance Requirement 4.2.3.5 specifies that the measurement instrumentation shall be calibrated within seven days prior to the performance of the calorimetric flow measurement. This requirement is due to the fact that the drift effects of this instrumentation are not included in the flow measurement uncertainty analysis. This requirement does not apply for the instrumentation whose drift effects have been included in the uncertainty analysis.

ATTACHMENT 5

OPERATIONAL LEAKAGE

1. T.S. 3.4.6.2 (pg. 3/4 4-22)

To Surveillance Requirement 4.4.6.2.2d, add the following words at the end of the sentence "except for valves RH8701A and B and RH8702A and B.".

This change is requested because the current wording requires that every time the RHR system is placed in operation (ie. flow through valves RH8701A and B and RH8702A and B) leakage must be verified to be within its limit within 24 hours. Placing the RHR system in operation is a normal part of the plant startup and shutdown process and requiring these valves to be leak tested every time RHR is used is an unnecessary operating restriction. This surveillance requirement was intended for monitoring check valve leakage but the RHR suction valves are motor operated valves. Therefore it is requested these valves be exempted from the requirement of leak testing within 24 hours after flow through the valves.

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REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

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

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

b. Monitoring the reactor cavity sump discharge, and the containment floor drain sump discharge and inventory at least once per 12 hours;

c. Measurement of the CONTROLLED LEAKAGE from the reactor coolant pump seals when the Reactor Coolant System pressure is 2235 ± 20 psig at least once per 31 days with the modulating valve fully open. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4;

d. Performance of a Reactor Coolant System water inventory balance at least once per 72 hours; and

e. Monitoring the Reactor Head Flange Leakoff System at least once per 24 hours.

4.4.6.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. At least once per 18 months,

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 72 hours or more and if leakage testing has not been performed in the previous 9 months,

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

d. Within 24 hours following valve actuation due to automatic or manual action or flow through the valve, except for valves RH8701A and B and RH8702A and B.

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

ATTACHMENT 6
CONTAINMENT LEAKAGE

1. T.S. 4.6.1.2 (pg. 3/4 6-3) Containment Leakage

In Surveillance 4.6.1.2 item c.1) delete the words in line 2 "containment leakage rate....imposed leak;" and replace with "supplemental test result, L_c, minus the sum of the Type A and the superimposed leak, L_o, is equal to or less than 0.25 L_a, or 0.25 L_t;".

Appendix J of 10CFR50 specifies the difference between the supplemental test data and the Type A test data should be within 25% of the maximum allowable leakage rate, L_a or L_t. Current wording in Tech Specs is confusing and needs to be clarified since the wording implies the superimposed leak is not included and this is not correct. So wording similar to other plants Tech Spec wording is proposed.

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CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. If any periodic Type A test fails to meet either 0.75 L_a or 0.75 L_t, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet 0.75 L_a, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet 0.75 L_a, at which time the above test schedule may be resumed;

c. The accuracy of each Type A test shall be verified by a supplemental test which:

1) Confirms the accuracy of the test by verifying that the ~~containment leakage rate calculated in accordance with ANSI N45.4-1972 Appendix C, is within 25% of the containment leakage rate measured prior to the introduction of the superimposed leak,~~ supplemental test result, L_c, minus the sum of the Type A and the superimposed leak, L_o, is equal to or less than 0.25 L_a, or 0.25 L_t;

2) Has a duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test; and

3) Requires that the rate at which gas is injected into the containment or bled from the containment during the supplemental test is between 0.75 L_a and 1.25 L_a.

d. Type B and C tests shall be conducted with gas at a pressure not less than P_a, 44.4 psig, at intervals no greater than 24 months except for tests involving:

1) Air locks, and

2) Purge supply and exhaust isolation valves with resilient material seals.

e. Air locks shall be tested and demonstrated OPERABLE by the requirements of Specification 4.6.1.3;

f. Purge supply and exhaust isolation valves with resilient material seals shall be tested and demonstrated OPERABLE by the requirements of Specification 4.6.1.7.3 or 4.6.1.7.4, as applicable; and

g. The provisions of Specification 4.0.2 are not applicable.

ATTACHMENT 7

BORON DILUTION PROTECTION SYSTEM

1. Table 4.3-1 Item 9 (pg. 3/4 3-12)

   Add "Following a Reactor trip or unit shutdown the monthly surveillance is not required for 12 hours." to NOTE (9).

   This must be added to allow time to do the Source Range Analog Channel Operational Test following a Reactor trip or shutdown. This surveillance can only be performed below P-6 (10^{-10} amps on IR). The surveillance can't be kept current while the plant is operating above P-6. Immediately following a Reactor trip the unit is in MODE 3 and the Analog Channel Operational Test is currently required to be in frequency.

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TABLE 4.3-1 (Continued)

TABLE NOTATIONS

*With the Reactor Trip System breakers closed and the Control Rod Drive System capable of rod withdrawal.

##Below P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.

###Below P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

(1) If not performed in previous 7 days.

(2) Comparison of calorimetric to excore power indication above 15% of RATED THERMAL POWER. Adjust excore channel gains consistent with calorimetric power if absolute difference is greater than 2%. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.

(3) Single point comparison of incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference is greater than or equal to 3%. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.

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

(5) Initial plateau curves shall be measured for each detector. Subsequent plateau curves shall be obtained, evaluated and compared to the initial curves. For the Intermediate Range and Power Range Neutron Flux channels the provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.

(6) Incore - Excore Calibration, above 75% of RATED THERMAL POWER. The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.

(7) Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(8) With power greater than or equal to the interlock Setpoint the required ANALOG CHANNEL OPERATIONAL TEST shall consist of verifying that the interlock is in the required state by observing the permissive annunciator window.

(9) Monthly surveillance in MODES 3*, 4*, and 5* shall also include verification that permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window. Monthly surveillance shall include verification of the Boron Dilution Alarm Setpoint of less than or equal to an increase of twice the count rate within a 10-minute period. Following a Reactor trip or unit shutdown the monthly surveillance is not required for 12 hours.

(10) Setpoint verification is not applicable.

(11) At least once per 18 months and following maintenance or adjustment of the Reactor trip breakers, the TRIP ACTUATING DEVICE OPERATIONAL TEST shall include independent verification of the Undervoltage and Shunt trips.

(12) At least once per 18 months during shutdown verify that on a simulated Boron Dilution Doubling test signal CVCS valves 112D and E open and 112B and C close within 30 seconds.

(13) CHANNEL CALIBRATION shall include the RTD bypass loops flow rate.

ATTACHMENT 8
POSITION INDICATION SYSTEM

1. T.S. 3.10.5 (pg. 3/4 10-5)

   In the first line of the ACTION statement, change the word "or" to "and".

   This change is requested for clarification. The intent of this specification is to allow the Digital Rod Position Indication System to be inoperable during rod drop time measurements. However, with the Position Indication System inoperable, the ACTION statement requires that the Reactor trip breakers be opened immediately. The ACTION statement currently conflicts with the LCO and the proposed wording will correct this.

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SPECIAL TEST EXCEPTIONS

3/4.10.5 POSITION INDICATION SYSTEM - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.10.5 The limitations of Specification 3.1.3.3 may be suspended during the performance of individual full-length shutdown and control rod drop time measurements provided only one shutdown or control bank is withdrawn from the fully inserted position at a time.

APPLICABILITY: MODES 3, 4, and 5 during performance of rod drop time measurements and during surveillance of digital rod position indicators for OPERABILITY.

ACTION:

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

SURVEILLANCE REQUIREMENTS

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

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

b. Within 24 steps during rod motion.

ATTACHMENT 9

FIRE DETECTION INSTRUMENTS

1. Table 3.3-11 (pages 3/4 3-58 and 3-59) Fire Detection Instruments

   Add the following instruments as noted on the attached sheets. These instruments are required to detect fires in areas containing equipment required for safe operation of Unit 1.

2. T.S. 3.7.10.3 (pg. 3/4 7-35)

   In the LCO add an item e. that reads as follows "e. Cable tunnel room.". Delete the word "and" from the end of item c and add it to item d.

   This change is required because the cable tunnel room is protected by the CO_2 system and contains safety related cables.

3. T.S. 4.7.10.3.2 (pg. 3/4 7-35)

   In Surveillance 4.7.10.3.2.a the number "375 psig" should be changed to "357 psig". This change is in accordance with the information provided in the Chemetron Maintenance and Operation Instruction Manual for operation of CO_2 systems.

4. Table 3.7-5 Fire Hose Stations (pgs 3/4 7-38 to 3/4 7-41)

   Add the hose stations as noted on the attached sheets based upon hose reel locations at Byron Station.

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TABLE 3.3-11

FIRE DETECTION INSTRUMENTS

INSTRUMENT LOCATION	INSTRUMENT TYPE*	TOTAL NUMBER OF INSTRUMENTS		
		Heat	Flame	Smoke
1. Containment ***				
Zone 11 Elev 426	Suppression	1 **		
Zone 12 Elev 426	Suppression	1 **		
Zone 2 Elev 401	Detection			2
Zone 3 Elev 401	Detection			2
Zone 4 Elev 401	Detection			2
Zone 5 Elev 401	Detection			2
Zone 6 Elev 426	Detection			6
Zone 76 Elev 426	Detection			13
Zone 7 Elev 414	Detection			7
Zone 24 Elev 414	Detection			16
2. Control Room				
Zone 29 Elev 383	Detection			4
Zone 68 Elev 451	Detection			3
Zone 69 Elev 451	Detection			12
Zone 75 Elev 451	Detection			20
Zone 68 Elev 451 (Unit 2)	Detection			3
3. Switchgear Rooms				
Zone 66 Elev 451	Detection			10
Zone 77 Elev 426	Detection			21
Zone 78 Elev 426	Detection			19
4. Upper Cable Spreading Room				
Zone 41 Elev 463	Detection			4
Zone 42 Elev 463	Detection			4
Zone 43 Elev 463	Detection			8
Zone 44 Elev 463	Detection			8
Zone 45 Elev 463	Detection			10
Zone 46 Elev 463	Detection			10
Zone 47 Elev 463	Detection			5
Zone 48 Elev 463	Detection			5
Lower Cable Spreading Room				
Zone 49 Elev 439	Detection			23
Zone 50 Elev 439	Detection			23
Zone 51 Elev 439	Detection			13
Zone 52 Elev 439	Detection			13
Zone 53 Elev 439	Detection			9
Zone 54 Elev 439	Detection			9
Zone 55 Elev 439	Detection			6
Zone 56 Elev 439	Detection			6
5. Remote Shutdown Panel				
Zone 13 Elev 383	Detection			7

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TABLE 3.3-11 (Continued)

FIRE DETECTION INSTRUMENTS

INSTRUMENT LOCATION	INSTRUMENT TYPE*	TOTAL NUMBER OF INSTRUMENTS		
		Heat	Flame	Smoke
6. Station Battery Room				
Zone 67 Elev 451	Detection			13
7. Diesel Generator Room				
Zone 37 Elev 401	Suppression	6		
Zone 38 Elev 401	Suppression	6		
Zone 71 Elev 401	Detection		1	
Zone 72 Elev 401	Detection		1	
8. Diesel Fuel Storage				
Zone 39 Elev 401	Suppression	1		
Zone 40 Elev 401	Suppression	1		
Zone 27 Elev 383	Suppression	3		
Zone 28 Elev 383	Suppression	3		
Zone 10 Elev 383	Detection			6
9. Safety Related Pumps				
Zone 41 Elev 383	Suppression	2		
Zone 42 Elev 383	Suppression	1		
Zone 16 Elev 364	Detection			2
Zone 18 Elev 364	Detection			10
Zone 19 Elev 364	Detection			3
Zone 20 Elev 346	Detection			3
Zone 21 Elev 346	Detection			3
Zone 52 RSH	Suppression	8		
Zone 11 Elev 330 (unit 2)	Detection			23
10. Fuel Storage				
Zone 39 Elev 401	Detection			29
Zone 38 Elev 426	Detection		3	
11. See next sheet				

TABLE NOTATIONS

*A single detector in a zone marked "Detection" will alarm in the Main Control Room. A single detector in a zone marked "Suppression" will initiate suppression and alarm in the Main Control Room.

**These are Containment Ventilation temperature switches. Upon receipt of a Hi-Hi temperature, suppression must be manually initiated. These switches are not 720 supervised.

***The fire detection instruments located within the containment are not required to be OPERABLE during the performance of Type A containment leakage rate tests.

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INSTRUMENT LOCATION	INSTRUMENT TYPE*			TOTAL NUMBER OF INSTRUMENTS
11. AUXILIARY BUILDING	HEAT	FLAME	SMOKE	
ZONE 70 ELEV 451 DETECTION			11	
~~ZONE 72 ELEV 426 DETECTION~~			~~19~~	
~~ZONE 66 ELEV 451 DETECTION~~			~~10~~	
ZONE 17 ELEV 364 DETECTION			37	
ZONE 40 ELEV 364 DETECTION			7	
ZONE 11 ELEV 383 DETECTION			37	
ZONE 8 ELEV 401 DETECTION			36	
ZONE 23 ELEV 426 DETECTION			6	
ZONE 25 ELEV 467 DETECTION			7	
~~ZONE 26 ELEV 364 DETECTION~~			~~12~~	
ZONE 64 ELEV 401 DETECTION			5	
ZONE 65 ELEV 401 DETECTION			5	
~~ZONE 12 ELEV 383 DETECTION~~			~~2~~	
ZONE 14 ELEV 401 DETECTION			4	
ZONE 15 ELEV 401 DETECTION			4	
ZONE 18 ELEV 364 DETECTION			10	
ZONE 17 ELEV 346 DETECTION (UNIT 2)			32	
ZONE 40 ELEV 346 DETECTION (UNIT 2)			12	
ZONE 12 ELEV 459 DETECTION (UNIT 2)			11	
ZONE 22 ELEV 467 DETECTION (UNIT 2)			18	
ZONE 62 ELEV 451 DETECTION (UNIT 2)			11	
ZONE 61 ELEV 439 DETECTION (UNIT 2)			7	
ZONE 75 ELEV 426 DETECTION (UNIT 2)			33	
12 Miscellaneous				
Zone 26 Elev 364 Detection			12	

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PLANT SYSTEMS

CO_2 SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.3 The following CO_2 Systems shall be OPERABLE:

a. Diesel generator rooms and day tank rooms,

b. Lower cable spreading room,

c. Auxiliary feedwater diesel room and day tank room, ~~and~~

d. Diesel-driven Essential Service Water (ESW) make-up pumps and day tank rooms, and

e. Cable tunnel room.

APPLICABILITY: Whenever equipment protected by the CO_2 systems is required to be OPERABLE.

ACTION:

a. With one or more of the above required CO_2 systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas (Lower Cable Spreading Room) in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.

delete line space

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

SURVEILLANCE REQUIREMENTS

4.7.10.3.1 Each of the above required CO_2 Systems shall be demonstrated OPERABLE at least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

4.7.10.3.2 Each of the above required CO_2 Systems shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the plant CO_2 storage tank level to be greater than 96% (9.6 tons) and river screen house CO_2 storage tank level to be greater than 50% (1 ton), and pressure of both to be greater than 275 and less than ~~375~~ 357 psig, and

b. At least once per 18 months by verifying:

1) The system, including associated ventilation system fire dampers, actuates both automatically upon receipt of a simulated actuation signal, and manually, and

2) Flow from each nozzle during a "Puff Test."

TABLE 3.7-5

FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Roof				
L-10:	South wall U-1 of safety valve penthouse	481	1	0FP331
L-26:	North wall U-2 of safety valve penthouse	481	2	0FP338
Aux. Bldg.				
S-18:	By dumb waiter	480	233	0FP458
S-15:	By U-1 prefilters (near stairs)	471	176	0FP329
S-21:	By U-2 prefilters (near stairs)	471	177	0FP334
Q-17:	Wall by elevator in upper cable room	469	244*	0FP469
Q-19:	Wall by stairs in upper cable room	469	252*	0FP477
L-11:	Outside Southeast corner of upper cable spreading room A-1	467	240	0FP465
L-14:	By the southeast door of UCSR C-1	467	241*	0FP466
M-13:	By the northwest corner of UCSR A-1	467	242*	0FP467
Q-13:	In the northwest corner of UCSR B-1	467	243*	0FP468
P-18:	Northwest corner of UCSR C-1	467	245*	0FP470
M-18:	North wall of UCSR C-1	467	246*	0FP471
M-18:	South wall of UCSR C-2	467	247*	0FP472
L-25:	Outside northeast corner of UCSR A-2	467	248	0FP473
L-22:	In the northeast corner of UCSR C-2	467	249*	0FP474
M-23:	In the southwest corner of UCSR A-2	467	250*	0FP475
P-20:	West wall of UCSR C-2	467	251*	0FP476
Q-23:	In the southwest corner of UCSR B-2	467	253*	0FP478
S-21:	By U-2 VA Filters (U-2 side)	464	232	0FP457
S-15:	By U-1 VA Filters (U-1 side)	464	234	0FP459
S-21:	By VA Filters (U-2 side)	456	231	0FP456
S-15:	By VA Filters (U-1 side)	456	235	0FP460
Q-24	Radwaste Drumming Station	387	110	0FP375
L-10:	By Control room refrig. units	387	106	0FP385
L-12:	By blowdown after filters	387	107	0FP384
S-19	By 2A RHR Heat Exchanger Room	387	112	0FP378

*Fire hoses that do not supply the primary means of fire suppression.

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TABLE 3.7-5 (Continued)

FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Bldg. (Continued)				
M-26	Radwaste Control Panel	387	109	OFP317
M-18:	By Aux. Feedwater motor driven pump 1A	387	108	OFP383
N-23:	By remote shutdown panel U-1	387	111	OFP376
Q-15:	By 480V MCC 132X3	387	113	OFP382
V-18:	By letdown heat exchanger	387	114	OFP379
P-7:	West Wall 6.9 kV switchgear room	455	20	OFP324
L-11:	In UC HVAC Rm OA of LCSR C-1	455	22	OFP332
L-25:	By OBVC HVAC Room	455	27	OFP335 FP
M-8:	South wall of battery room	451	279	OFP638
M-26:	South wall of battery room	451	280	OFP639
M-18:	North wall U-1 AB by door	444	238*	OFP463
L-7:	East wall LCSR A-1	443	207*	OFP330
M-10:	In the southeast corner of LCSR B-1	443	208*	OFP327
P-10:	In the southwest corner of LCSR B-1	443	209*	OFP325
M-13:	South wall of LCSR C-1	443	210*	OFP326
P-13:	West wall of LCSR D-1	443	211*	OFP328
S-21:	By cabinet 2RY01EC (elec. pen. area)	431	229	OFP454
S-24:	By U-2 cont. shield wall (elec pen. area)	431	230	OFP455
S-15:	By Pzr htr. transformer (elec pen. area)	431	236	OFP461
S-12:	By U-1 cont. shield wall (elec pen. area)	431	237	OFP462
M-18	Rad Chem Offices	430	57	OFP323
Q-10:	Back of Div. 11 swgr room	430	283	OFP640
P-11:	Outside Laundry Room	430	52	OFP313
Q-19:	By U-2 VCT valve aisle	430	54	OFP342
P-24:	By radwaste evaporator	430	55	OFP343
V-17:	By east door to decon/change area	430	58	OFP319
V-17:	By west door to decon/change area	430	61	OFP320
S-15:	By Pzr. htr. transformer (elec pen. area)	419	174	OFP322
Q-10:	By electrical penetration area	419	205	OFP321
L-11:	By waste oil tank room	405	90	OFP315
P-18:	By elevator	405	91	OFP318
P-23:	By spent resin pumps	405	92	OFP349
Q-11:	By laundry tanks	405	93	OFP314
S-21:	East of U-2 hydrogen recombiner	405	94	OFP348
V-21:	West of U-2 hydrogen recombiner	405	95	OFP345

See Attachment A

*Fire hoses that do not supply the primary means of fire suppression.

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Attachment A

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		Elev.	Hose Rack Reel	Angle Valve
M-18	Southwall of LCSR U-2 AB By Door	443	239*	OFP46
L-29	East Wall LCSR A-2	443	212*	OFP33
M-26	In Northeast Corner of LCSR B-2	443	213*	OFP33
P-26	In Northwest corner of LCSR B-2	443	214*	OFP34
M-23	North Wall of LCSR C-2	443	215*	OFP34
P-21	East Wall of LCSR D-2	443	216*	OFP33

TABLE 3.7-5 (Continued)

FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Bldg. (Continued)				
V-15:	West of U-1 hydrogen recombiner control panel	405	96	0FP316
S-15:	East of U-1 hydrogen recombiner	405	97	0FP317
N-11:	By the recycle holdup tanks	368	130	0FP373
M-13:	By the U-1 stairs	368	131	0FP374
P-13:	By panel 1PL84JB	368	132	0FP369
L-20:	By the U-2 stairs	368	133	0FP355
P-21:	By the blowdown condenser	368	134	0FP356
L-25:	By the PW M/U pumps	368	135	0FP361
N-25:	By chemical drain tank	368	136	0FP357
S-18:	By panel 1PL86J	368	138	0FP362
Q-11:	By Aux. Bldg. floor drain tanks	368	139	0FP368
U-15:	By U-1 spray add tank	368	140	0FP372
V-18:	By U-2 cent. chg. pump room	368	141	0FP366
P-11:	By recycle evaporator feed pumps	350	151	0FP381
M-13:	By U-1 stairs	350	152	0FP370
N-23:	By gas decay tanks	350	154	0FP352
Q-19:	By "B" Aux. Bldg. Equip. drain tank	350	155	0FP365
Q-17:	By "A" Aux. Bldg. Equip. drain tank	350	156	0FP371
Q-13:	By collection sump pumps	350	157	0FP380
S-18:	Between moderating heat exchangers	350	158	0FP354
V-18:	Between BR chiller units	350	161	0FP353
W-15:	By CS pump 1A	350	163	0FP367
L-19	By OB RECYCLE EVAPRM	350	153	OFP363
M-13:	By leak detection sump	334	165	0FP448
P-18:	By elevator pit	334	166	0FP449
P-18:	By 1B SX pump room	334	167	0FP351
M-23:	By 1B SX pump room	334	168	0FP350
Fuel Hand. Bldg.				
Z-15:	South of decon. area	430	170	0FP389
X-21:	North of spent fuel pool	430	171	0FP386
Z-15:	By 480V MCC 134X6	405	172	0FP388
AA-19:	Outside FC pump room	405	173	0FP387
Cont. #1				
R-17:	By reactor head assembly area	430	62	1FP163
R-2:	By accumulator tank 1C	430	63	1FP154

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TABLE 3.7-5 (Continued)

FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Cont. #1 (Continued)				
R-7:	By equipment hatch	430	64	1FP160
R-12:	By charcoal filter 1A	430	65	1FP157
R-17:	By south stairs	403	98	1FP164
R-2:	By RCFC 1C	403	99	1FP155
R-7:	By pressurizer (outside missile shield)	403	100	1FP161
R-12:	By panel 1PL69J	403	101	1FP158
R-12:	By PRT	381	143	1FP159
R-17:	By south stairs	381	144	1FP162
R-2:	By RCFC 1C	381	145	1FP156
R-7:	By panel 1PL52J	381	146	1FP165
Turbine Bldg.				
K-14:	By the control room	451	16	1FP194
L-6	Outside 1B D/G Rm	405	87	1FP183
K-10	Outside 1A D/G Rm	405	281	1FP275
L-7	Basement of Turbine Bldg.	361	129	1FP184
L-7	Outside DIV 12 SWGR	430	47	1FP181
L-10	Outside Div 11 SWGR	430	51	1FP182
L-5	Outside non-ESF SWGR	455	18	1FP180
L-10	Outside Battery Rm	455	21	1FP179

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ATTACHMENT 10
SIGNIFICANT TYPOS

1. Table 3.3-12 (pg. 3/4 3-62) Item 2a

   Change "1B Outlet" to "1C Outlet". This change is necessary to correct the equipment identification. This change is typographical.

2. Table 3.6-1 (pgs. 3/4 6-19 and 3/4 6-23)

   For the Hydrogen Monitor valves numbered 1PS231B, 1PS228B, 1PS229B, 1PS230B the Penetration number should be changed from "12" to "31". Penetration number "31" is the correct value. The FSAR Table 6.2-58 currently indicates "12" and this is also being revised to "31".

3. T.S. 4.7.4 (pg. 3/4 7-14) Ultimate Heat Sink

   Surveillance 4.7.4 should be changed to 4.7.5 which is the Tech Spec section it applies to. This change is typographical.

TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release		
Liquid Radwaste Effluent Line (ORE-PR001)	1	31
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release		
a. Essential Service Water RCFC 1A and 1~~B~~ C Outlet (1RE-PR002)	1	32
b. Essential Service Water RCFC 1B and 1D Outlet (1RE-PR003)	1	32
c. Station Blowdown Line (ORE-PR010)	1	32
3. Flow Rate Measurement Devices		
a. Liquid Radwaste Effluent Line (loop-WX001)	1	33
b. Station Blowdown Line (loop-CW032)	1	33

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
1. Phase "A" Isolation (Continued)			
52	1PR001A	Process Radiation	4.5
52	1PR001B	Process Radiation	4.5
52	1PR066	Process Radiation	5.0
12	1PS228A	Hydrogen Monitor	N.A. ~~N/A**~~
12	1PS229A	Hydrogen Monitor	N.A. ~~N/A**~~
12	1PS230A	Hydrogen Monitor	N.A. ~~N/A**~~
~~12~~ 31	1PS228B	Hydrogen Monitor	N.A. ~~N/A**~~
~~12~~ 31	1PS229B	Hydrogen Monitor	N.A. ~~N/A**~~
~~12~~ 31	1PS230B	Hydrogen Monitor	N.A. ~~N/A**~~
70	1PS9354A	Primary Process Sampling	10
70	1PS9354B	Primary Process Sampling	10
70	1PS9355A	Primary Process Sampling	10
70	1PS9355B	Primary Process Sampling	10
70	1PS9356A	Primary Process Sampling	10
70	1PS9356B	Primary Process Sampling	10
70	1PS9357A	Primary Process Sampling	10
70	1PS9357B	Primary Process Sampling	10
11	1RE9170	Reactor Bldg Equip Drains	10
11	1RE1003	Reactor Bldg Equip Drains	10
65	1RE9157	Reactor Bldg Equip Drains	10
65	1RE9159A	Reactor Bldg Equip Drains	10
65	1RE9159B	Reactor Bldg Equip Drains	10
65	1RE9160A	Reactor Bldg Equip Drains	10
65	1RE9160B	Reactor Bldg Equip Drains	10
27	1RY8025	PRT Nitrogen	10
27	1RY8026	PRT Nitrogen	10
27	1RY8033	PRT Nitrogen	10
44	1RY8028	PRT Make-up	10
55	1SI8964	Accumulator Fill	10
55	1SI8880	Nitrogen Supply to Accumulator	10
55	1SI8871	Accumulator Fill	10
55	1SI8888	Hot Leg Safety Injection	10
47	1RF026	Reactor Building Floor Drains	15
47	1RF027	Reactor Building Floor Drains	15

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
9. Manual (Continued)			
99	1FW015D*	Feedwater	N/A
100	1FW015A*	Feedwater	N/A
101	1FW015B*	Feedwater	N/A
102	1FW015C*	Feedwater	N/A
10. Check			
28	1CV8113	RCP Seal Water Return	N/A
37	1CV8348*	RCS Loop Fill	N/A
6	1WØ007A	Chilled Water	N/A
10	1WØ007B	Chilled Water	N/A
21	1CC9534	RCP Mtr Brng Return	N/A
24	1CC9518	RCP Thermal Barrier Return	N/A
25	1CC9486	RCP Cooling Wtr Supply	N/A
1	1CS008A	Containment Spray	N/A
16	1CS008B	Containment Spray	N/A
39	1IA091	Instrument Air	N/A
30	1WM191	Make-Up Demin	N/A
52	1PR032	Process Radiation	N/A
AL	1PR002G	Process Radiation	N/A
AL	1PR002H	Process Radiation	N/A
12	1PS231A	Hydrogen Monitor	N/A
31 ~~12~~	1PS231B	Hydrogen Monitor	N/A
27	1RY8047	PRT Nitrogen	N/A
44	1RY8046	PRT Make-Up	N/A
26	1SI8815*	Safety Injection	N/A
50	1SI8818A*	Safety Injection	N/A
50	1SI8818D*	Safety Injection	N/A
51	1SI8818B*	Safety Injection	N/A
51	1SI8818C*	Safety Injection	N/A
59	1SI8905A*	Safety Injection	N/A
59	1SI8805D*	Safety Injection	N/A
60	1SI8819A*	Safety Injection	N/A
60	1SI8819B*	Safety Injection	N/A

N.A.

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LIMITING CONDITION FOR OPERATION (Continued)

d. With the essential service water pump discharge water temperature not meeting the above requirement, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. With the minimum Rock River water level not meeting the above requirement, notify the NRC within 1 hour in accordance with the procedure of §50.72 of actions or contingencies to ensure an adequate supply of cooling water to the Byron Station for a minimum of 30 days, verify the Rock River flow within one hour, and:

(1) If Rock River flow is less than 700 cfs be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours, or

(2) If Rock River flow is equal to or greater than 700 cfs continue verification procedure every 12 hours or until Rock River water level exceeds 670.6 ft msl, or

(3) If Rock River level is equal to or less than 664.7 ft msl be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours

f. With one deep well inoperable and:

(1) The Rock River water level predicted, through NWS flood forecasts, to exceed 702 ft msl, or

(2) The Rock River water level at or below 670.6 ft msl, or

(3) A tornado watch issued by the NWS that includes the area for the Byron Station.

Notify the NRC within 1 hour in accordance with the procedure of §50.72 of actions or contingencies to ensure an adequate supply of cooling water to the Byron Station for a minimum of 30 days and restore both wells to OPERABLE status before the Rock River water level exceeds 702 ft msl or the minimum Rock River level or flow falls below 664.7 ft or 700 cfs, respectively, or within 72 hours, whichever occurs first, 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.~~6~~ 5 The UHS shall be determined OPERABLE at least once per:

a. 24 hours by verifying the water level in each UHS cooling tower basin to be greater than or equal to 873.5 feet msl. (86% of total volume)

ATTACHMENT 12
CONTAINMENT ISOLATION VALVES

1. Table 3.6-1 (pgs. 3/4 6-20 and 6-21)

Table 3.6-1 indicates the Main Steam Isolation Bypass Valves have a maximum isolation time of 10.0 seconds. This value is inconsistent with the ESF response time for main steamline isolation of 7 seconds in Table 3.3-5 and the manufacturers design response time of less than or equal to 6.0 seconds. There had been a design problem so the bypass valves response time had been increased to 10.0 seconds and an FSAR change was made. Since then a design modification has been made so the valves now close in ≤6.0 seconds. Therefore it is requested that Table 3.6-1 be revised to reflect the 6 seconds valve closure time.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
2. Phase "B" Isolation			
21	1CC9414	RCP Mtr Brng Return	10
21	1CC9416	RCP Mtr Brng Return	10
24	1CC685	RCP Thermal Barrier Return	10
24	1CC9438	RCP Thermal Barrier Return	10
25	1CC9413A	RCP Cooling Wtr Supply	10
3. Safety Injection			
71	1CV8105*	CVCS Charging	10
71	1CV8106*	CVCS Charging	10
7	1SX016B*	Essential Service Water	~~N/A~~ N.A.
9	1SX027B*	Essential Service Water	~~N/A~~ N.A.
14	1SX027A*	Essential Service Water	~~N/A~~ N.A.
15	1SX016A*	Essential Service Water	~~N/A~~ N.A.
26	1SI8801A*	Cold Leg Safety Injection	~~N/A~~ N.A.
26	1SI8801B*	Cold Leg Safety Injection	~~N/A~~ N.A.
92	1SI8811A*	Containment Recirc. Sump	~~N/A~~ N.A.
93	1SI8811B*	Containment Recirc. Sump	~~N/A~~ N.A.
4. Containment Ventilation Isolation			
94	1VQ003	Mini-Flow Purge Exhaust	5
94	1VQ005A	Mini-Flow Purge Exhaust	5
94	1VQ005B	Mini-Flow Purge Exhaust	5
94	1VQ005C	Mini-Flow Purge Exhaust	5
95	1VQ002A	Purge Exhaust	5
95	1VQ002B	Purge Exhaust	5
96	1VQ004A	Mini-Flow Purge Supply	5
96	1VQ004B	Mini-Flow Purge Supply	5
97	1VQ001A	Purge Supply	5
97	1VQ001B	Purge Supply	5
5. Containment Spray Actuation			
1	1CS007A	Containment Spray	30
16	1CS007B	Containment Spray	30
6. Main Steam Isolation			
77	1MS101D*	Main Steam	~~10.0~~ 6.0
78	1MS101A*	Main Steam	~~10.0~~ 6.0

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
6. Main Steam Isolation (Continued)			
85	1MS101B*	Main Steam	~~10.0~~ 6.0
86	1MS101C*	Main Steam	~~10.0~~ 6.0
7. Feedwater Isolation			
76	1FW009D*	Main Feedwater	5.0
76	1FW043D*	Main Feedwater	6.0
79	1FW009A*	Main Feedwater	5.0
79	1FW043A*	Main Feedwater	6.0
84	1FW009B*	Main Feedwater	5.0
84	1FW043B*	Main Feedwater	6.0
87	1FW009C*	Main Feedwater	5.0
87	1FW043C*	Main Feedwater	6.0
99	1FW035D*	Main Feedwater	6.0
99	1FW039D*	Main Feedwater	6.0
100	1FW035A*	Main Feedwater	6.0
100	1FW039A*	Main Feedwater	6.0
101	1FW035B*	Main Feedwater	6.0
101	1FW039B*	Main Feedwater	6.0
102	1FW035C*	Main Feedwater	6.0
102	1FW039C*	Main Feedwater	6.0
8. Remote Manual			
68	1RH8701A*	RH Suction	~~N/A~~ N.A
68	1RH8701B*	RH Suction	~~N/A~~
75	1RH8702A*	RH Suction	~~N/A~~
75	1RH8702B*	RH Suction	~~N/A~~
59	1SI8881*	Hot Leg Safety Injection	~~N/A~~
73	1SI8824*	Hot Leg Safety Injection	~~N/A~~
66	1SI8825*	Hot Leg RH Injection	~~N/A~~
60	1SI8823*	Cold Leg Safety Injection	~~N/A~~
50	1SI8890A*	Cold Leg RH Injection	~~N/A~~
51	1SI8890B*	Cold Leg RH Injection	~~N/A~~
26	1SI8843*	Cold Leg Safety Injection	~~N/A~~
33	1CV8355A*	RCP Seal Injection	~~N/A~~
33	1CV8355D*	RCP Seal Injection	~~N/A~~
53	1CV8355B*	RCP Seal Injection	~~N/A~~
53	1CV8355C*	RCP Seal Injection	~~N/A~~ N.A

ATTACHMENT 13
OPERATIONAL LEAKAGE SURVEILLANCE

1. T.S. 3.5.2.e (pg. 3/4 5-3) ECCS Subsystems - Tavg $\geq$ 350°F

In the LCO item e add an asterisk after the word "path" in the first line. Also at the bottom of the page add the following:

> "*During MODE 3, the discharge paths of both Safety Injection pumps may be isolated by closing valve SI8835 for a period of up to 2 hours to perform surveillance testing as required by Surveillance Requirement 4.4.6.2.2."

This change is requested so that Surveillance Requirement 4.4.6.2.2 on page 3/4 4-22 may be performed without conflicting with LCO 3.5.2 item e. Surveillance 4.4.6.2.2 relates to testing for RCS pressure boundary leakage in which MOV SI8835 must be closed in order to test the cold leg injection path check valves SI8819A, B, C, D for leakage. Valve SI8835 must be closed to prevent a gravity flow from the RWST, through the ECCS pumps to the leakage test lines to contribute to a false high leakage reading. Closing MOV SI8835 isolates both discharge paths of the Safety Injection pumps to the RCS, thereby violating LCO 3.5.2 item e. The proposed change will eliminate this conflict.

3/4.5.2 ECCS SUBSYSTEMS - $T_{avg} \geq 350°F$

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE centrifugal charging pump,

b.. One OPERABLE Safety Injection pump,

c. One OPERABLE RHR heat exchanger,

d. One OPERABLE RHR pump, and

e. An OPERABLE flow path* capable of taking suction from the refueling water storage tank on a Safety Injection signal and automatic opening of the containment sump suction valves.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected Safety Injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

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* During MODE 3, the discharge paths of both Safety Injection pumps may be isolated by closing valve SI8835 for a period of up to 2 hours to perform surveillance testing as required by Surveillance Requirement 4.4.6.2.2.

ATTACHMENT 14
ECCS FLOWRATES

1. Surveillance Requirement 4.5.2.h. (pg. 3/4 5-6) ECCS Subsystems - Tavg $\geq$ 350°F

   In item h.1)b) change "535" gpm to "550" gpm
   In item h.2)a) change "460" gpm to "439" gpm
   In item h.2)b) change "650" gpm to "655" gpm
   In item h.3) change "3800" gpm to "3804" gpm

   The above changes are requested so the ECCS pump flow limits in the Tech Specs accurately reflect the values used by Westinghouse in the safeguards analysis. These numbers have been verified by Westinghouse.

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SURVEILLANCE REQUIREMENTS (Continued)

g. By verifying the correct position of each mechanical position stop for the following ECCS throttle valves:

1) Within 4 hours following completion of each valve stroking operation or maintenance on the valve when the ECCS subsystems are required to be OPERABLE, and

2) At least once per 18 months.

High Head SI System Valve Number	SI System Valve Number
1SI8810 A,B,C,D	1SI8822 A,B,C,D 1SI8816 A,B,C,D

h. By performing a flow balance test, during shutdown, following completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics and verifying that:

1) For centrifugal charging pump lines, with a single pump running:

a) The sum of the injection line flow rates, excluding the highest flow rate, is greater than or equal to 330 gpm, and

b) The total pump flow rate is less than or equal to ~~[illegible]~~ 550 gpm, including a simulated seal injection flow of 80 gpm.

2) For Safety Injection pump lines, with a single pump running:

a) The sum of the injection line flow rates, excluding the highest flow rate, is greater than or equal to ~~[illegible]~~ 439 gpm, and

b) The total pump flow rate is less than or equal to ~~[illegible]~~ 655 gpm.

3) For RHR pump lines, with a single pump running, the sum of the injection line flow rates is greater than or equal to ~~[illegible]~~ 3804 gpm.

ATTACHMENT 15

REACTOR COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM

1. Table 4.4-2 (pg. 3/4 4-31) Table Notations

   From Table Notations "**" in the next to the last line, delete the words "isotopic decay".

   It is not technically accurate to use isotopic decay data to correct the reactor coolant radioactivity analysis for beta-emitting radio-nuclides because by using the latest available beta-emitters data you assume that the beta activity is remaining relatively constant. Therefore, isotopic decay is not used appropriately and should be deleted.

   This change also allows Byron Station to use data from the nuclear data sheets as well as plant specific analysis data.

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TABLE 4.4-4 (Continued)

TABLE NOTATIONS

#Until the specific activity of the Reactor Coolant System is restored within its limits.

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

**A gross radioactivity analysis shall consist of the quantitative measurement of the total specific activity of the reactor coolant except for radionuclides with half-lives less than 10 minutes and all radioiodines. The total specific activity shall be the sum of the degassed beta-gamma activity and the total of all identified gaseous activities in the sample within 2 hours after the sample is taken and extrapolated back to when the sample was taken. Determination of the contributors to the gross specific activity shall be based upon those energy peaks identifiable with a 95% confidence level. The latest available ~~isotopic decay~~ data may be used for pure beta-emitting radio-nuclides.

***A radiochemical analysis for $\bar{E}$ shall consist of the quantitative measurement of the specific activity for each radionuclide, except for radionuclides with half-lives less than 10 minutes and all radio-iodines, which is identified in the reactor coolant. The specific activities for these individual radionuclides shall be used in the determination of $\bar{E}$ for the reactor coolant sample. Determination of the contributors to $\bar{E}$ shall be based upon these energy peaks identifiable with a 95% confidence level.

ATTACHMENT 16

LIQUID RADWASTE TREATMENT SYSTEM

1. T.S. 3.11.1.3 (pg. 3/4 11-7)

To Surveillance Requirement 4.11.1.3.1 add the following words "when the Liquid Radwaste Treatment System is not being fully utilized.".

Calculations regarding a dose from liquid releases are performed in accordance with T.S. 3.11.1.2 at least once per 31 days. Redundant calculations should not be required under 3.11.1.3 unless a portion of the Liquid Radwaste Treatment System is inoperable and then a projected dose would be determined.

This proposed change makes the Liquid Radwaste Treatment System surveillance wording consistent with that used for the Gaseous Radwaste Treatment System in surveillance 4.11.2.4.1 on page 3/4 11-15.

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RADIOACTIVE EFFLUENTS

LIQUID RADWASTE TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

3.11.1.3 The Liquid Radwaste Treatment System shall be OPERABLE and appropriate portions of the system shall be used to reduce releases of radioactivity when the projected doses due to the liquid effluent, from each unit, to UNRESTRICTED AREAS (see Figure 5.1-1) would exceed 0.06 mrem to the whole body or 0.2 mrem to any organ in a 31-day period.

APPLICABILITY: At all times.

ACTION:

a. With radioactive liquid waste being discharged without treatment and in excess of the above limits and any portion of the Liquid Radwaste Treatment System not in operation, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that includes the following information:

   1. Explanation of why liquid radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems, and the reason for the inoperability,

   2. Action(s) taken to restore the inoperable equipment to OPERABLE status, and

   3. Summary description of action(s) taken to prevent a recurrence.

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

SURVEILLANCE REQUIREMENTS

4.11.1.3.1 Doses due to liquid releases from each unit to UNRESTRICTED AREAS shall be projected at least once per 31 days in accordance with the methodology and parameters in the ODCM, when the Liquid Radwaste Treatment System is not being fully utilized.

4.11.1.3.2 The installed Liquid Radwaste Treatment System shall be considered OPERABLE by meeting Specifications 3.11.1.1 and 3.11.1.2.

ATTACHMENT 17
ACCIDENT MONITORING INSTRUMENTATION

1. Table 3.3-10 and Table 4.3-7 (pages 3/4 3-54 and 3/4 3-55)

   On both of these Tables delete items 18 and 19, the Containment Hydrogen Concentration instruments and Neutron Flux (Power Range) instruments. Renumber items 20 through 23 as items 18 through 21.

   These items are requested to be deleted from these Tables because they are included in other Tech Specs. The Power Range channels are required to be operable by T.S. 3.3.1 as listed in item 2 of Table 3.3-1 and Table 4.3-1. Also two independent containment hydrogen monitors are required operable by T.S. 3.6.4.1.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED 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	1/steam generator	1/steam generator
8. Steam Generator Water Level - Wide Range	1/steam generator	1/steam generator
9. Refueling Water Storage Tank Water Level	2	1
10. Auxiliary Feedater Flow Rate	2/steam generator	1/steam generator
11. PORV Position Indicator* (Open/Closed)	1/Valve	1/Valve
12. PORV Block Valve Position Indicator** (Open/Closed)	1/Valve	1/Valve
13. Safety Valve Position Indicator (Open/Closed)	1/Valve	1/Valve
14. Containment Floor Drain Sump Water Level (Narrow Range)	2	1
15. Containment Water Level (Wide Range)	2	1
16. In Core Thermocouples	4/core quadrant	2/core quadrant
17. Containment High Range Area Radiation	N.A.	1
~~18. Containment Hydrogen Concentration~~	~~2~~	~~1~~
~~19. Neutron Flux (Power Range)~~	~~4~~	~~2~~
18. ~~20.~~ Auxiliary Building Vent Stack - Wide Range Noble Gas	N.A.	1/stack
19. ~~21.~~ Main Steam Line Radiation	N.A.	1/stm line
20. ~~22.~~ Reactor Vessel Water Level	2	1
21. ~~23.~~ Reactor Coolant Subcooling Margin Monitor	2***	1***

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

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

*** [illegible] channels (10 highest average core exit temperatures) in conjunction

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TABLE 4. . 7

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. Containment Pressure	M	R
2. Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	M	R
3. Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	M	R
4. Reactor Coolant Pressure - Wide Range	M	R
5. Pressurizer Water Level	M	R
6. Steam Line Pressure	M	R
7. Steam Generator Water Level - Narrow Range	M	R
8. Steam Generator Water Level - Wide Range	M	R
9. Refueling Water Storage Tank Water Level	M	R
10. Auxiliary Feedater Flow Rate	M	R
11. PORV Position Indicator* (Open/Closed)	M	N.A.
12. PORV Block Valve Position Indicator** (Open/Closed)	M	N.A.
13. Safety Valve Position Indicator (Open/Closed)	M	N.A.
14. Containment Floor Drain Sump Water Level (Narrow Range)	M	R
15. Containment Water Level (Wide Range)	M	R
16. In Core Thermocouples	M	R
17. Containment High Range Area Radiation	M	R***
~~18. Containment Hydrogen Concentration~~	~~S~~	~~Q~~
~~19. Neutron Flux (Power Range)~~	~~M~~	~~R~~
18. ~~20.~~ Auxiliary Building Vent Stack - Wide Range Noble Gas	M	R
19. ~~21.~~ Main Steam Line Radiation	M	R
20. ~~22.~~ Reactor Vessel Water Level	M	R

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

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

***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.

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ATTACHMENT 18

REVISION OF INTERIM TECH SPECS

1. T.S. 3.7.1.5* (pg. 3/4 7-9) Main Steamline Isolation Valves

2. Delete the asterisk after 3.7.1.5 and the note at the bottom of the page. The note only applied until initial criticality on Cycle 1.

3. T.S. 3.7.6* (pg. 3/4 7-16a) Control Room Ventilation

4. Delete this page. It only applied until initial criticality on Cycle 1.

5. T.S. 3.7.7* (pg. 3/4 7-19) Auxiliary Building Ventilation

6. Change the note at the bottom of the page to read

   "*Not applicable prior to July 1, 1985."

7. T.S. 3.9.4 (pg. 3/4 9-4) Containment Building Penetrations

8. Delete the asterisk after the words "CORE ALTERATIONS" in the APPLICABILITY statement and the note at the bottom of the page. The note only applied until initial criticality.

9. T.S. 3.9.12* (pg. 3/4 9-14) Fuel Handling Building Ventilation

10. Delete the asterisk after 3.9.12 and delete the note at the bottom of the page.

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PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.5 ~~*~~ Each main steam line isolation valve (MSIV) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

MODE 1:

With one MSIV inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 4 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

MODES 2 and 3:

With one MSIV inoperable, subsequent operation in MODE 2 or 3 may proceed provided the isolation valve is maintained closed. The provisions of Specification 3.0.4 are not applicable. Otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.5 Each MSIV shall be demonstrated OPERABLE by verifying full closure within 5 seconds when tested pursuant to Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

~~*Not applicable prior to initial criticality on Cycle 1, provided the RCS boron concentration is greater than or equal to 1900 ppm and only 1 MSIV is open at a time.~~

DELETE THIS PAGE 1/15/85

3/4.7.6 CONTROL ROOM VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6* One Control Room Ventilation System shall be OPERABLE.

APPLICABILITY: 3, 4, 5, 6.

ACTION:

MODES 3 and 4:

With the Control Room Ventilation System inoperable, restore the inoperable system to OPERABLE status within 4 hours 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 the Control Room Ventilation System inoperable suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.7.6 The Control Room 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 90°F;

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the Emergency Makeup System 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 Emergency Makeup System filter plenum by:

*Applicable only before initial criticality on Cycle 1.

3/4.7.7 NON-ACCESSIBLE AREA EXHAUST FILTER PLENUM VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7* Three independent non-accessible area exhaust filter plenums (50% capacity each) shall be OPERABLE.

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

ACTION:

With one non-accessible area exhaust filter plenum inoperable, restore the inoperable plenum to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.7 Each non-accessible area exhaust filter plenum shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that operation occurs for at least 15 minutes;

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 exhaust filter plenum by:

1) Verifying that the exhaust filter plenum satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% when using 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 flow rate is 66,900 cfm ± 10% for the train and 22,300 cfm ±10% per bank;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample from each bank of adsorbers of the train 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 methyl idodide penetration of less than 1% when tested at the temperature of 30°C and a relative humidity of 70%;

*Not applicable prior to July 1, 1985. ~~Mode 1 because of the low fission product inventory available at or below the limiting power level of 5%.~~

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REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

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

a. The personnel hatch should have a minimum of one door closed at any one time and the equipment hatch shall be in place and held by a minimum of four bolts or the equipment hatch removed pursuant to Surveillance Requirement 4.9.4.2,

b. A minimum of one door in the personnel emergency exit hatch 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) Capable of being closed by an OPERABLE automatic containment purge isolation valve.

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 capable of being closed by an OPERABLE automatic containment purge isolation valve within 100 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. Testing the containment purge isolation valves per the applicable portions of Specification 4.6.3.2.

~~*Not applicable prior to initial criticality.~~

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REFUELING OPERATIONS

3/4.9.12 FUEL HANDLING BUILDING EXHAUST FILTER PLENUMS

LIMITING CONDITION FOR OPERATION

3.9.12~~*~~ Two independent Fuel Handling Building Exhaust Filter Plenums shall be OPERABLE.

APPLICABILITY: Whenever irradiated fuel is in the storage pool

ACTION:

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

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

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

SURVEILLANCE REQUIREMENTS

4.9.12 The above required Fuel Handling Building Exhaust Filter Plenums shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes;

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:

~~*Not applicable prior to [illegible] because of the low fission product inventory available at or below the limiting power level of 5%.~~

ATTACHMENT 19

AUXILIARY FEEDWATER

1. Surveillance Requirement 4.7.1.2.1.b.2.a (pg. 3/4 7-5)

   Change item b. 2) a) from "ESF" to "SI". This change is made to clarify which ESF signal causes the Auxiliary Feedwater Pumps to start automatically.

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2) Verifying by flow or position check that each valve (manual, power-operated, or automatic) valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position; and

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 the motor-driven pump and the direct-driven diesel pump start automatically upon receipt of each of the following test signals:

a) ~~ESF~~ SI, or

b) Steam Generator Water Level Low-Low from one steam generator, or

c) Undervoltage on Reactor Coolant Pump 6.9 kV Buses (2/4), or

d) ESF Bus 141 Undervoltage (motor-driven pump only).

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.

4.7.1.2.3 The auxiliary feedwater pump diesel shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying the fuel level in its day tank;

b. At least once per 92 days by verifying that a drain sample of diesel fuel from its day tank, obtained in accordance with ASTM-D4057-1981 is within the acceptable limits specified in Table 1 of ASTM-D975-1977 when checked for viscosity, water, and sediment; and

c. At least once per 18 months, during shutdown, by subjecting the diesel to an inspection in accordance with its manufacturer's recommendations for this class of service.

ATTACHMENT 20
TYPOGRAPHICAL ERRORS

1. 3/4.4 (pg. XVI) Reactor Coolant System

   On line 7 of this page change "EJ1MeV" to "E > 1MeV". This change is typographical.

2. 6.5 (pg. XX) Review Investigation and Audit

   Section 6.5.2 second line, delete the letter "s" from the word "Functions". This change makes the Table of Contents consistent with the text headings.

3. T.S. 4.1.2.5 (pg. 3/4 1-11) Borated Water Source - Shutdown

   On Surveillance 4.1.2.5 item a 2) change the word "volume" to "level". This change is necessary because the operator in the control room sees a borated water "level" indication instead of a "volume" indication for this equipment.

4. T.S. 4.1.2.6 (pg. 3/4 1-13) Borated Water Source - Operating

   On Surveillance 4.1.2.6 item a 2) change the word "volume" to "level". This change is necessary because the operator in the control room sees a borated water "level" indication instead of a "volume" indication for this equipment.

5. Bases 3/4.11.2.6 (pg. B3/4 11-6)

   Starting in the first paragraph third line, delete the words "to a quanitity...in 10 CFR Part 20.". Combine the remaining sentence in the first paragraph with the second paragraph on page B3/4 11-7 to make one paragraph.

   This deletion is requested because the information provided is redundant to that presented in the second paragraph on page B3/4 11-7. This deletion will help clarify Section B3/4.11.2.6.

6. Table 4.3-8 (pg. 3/4 3-64) Items 2a and 2b

   In item 2a change the "IC" to "1C" and in Item 2b change "ID" to "1D". These changes are typographical.

7. T.S. 4.3.4.2 (pg. 3/4 3-75) Turbine Overspeed Protection

   In Item a of TS 4.3.4.2 add the word "by" between the words "day direct" in line 1. This is a grammatical change.

8. T.S. 3.4.3 (pg. 3/4 4-11) Pressurizer

   In ACTION a, first line, the word "operable" should be spelled using all upper case lettering. The Tech Spec definition for the word operable will then apply. This change is typographical.

9. T.S. 3.4.6.1 (pg. 3/4 4-20) RCS Leakage

In ACTION a, first line, the word "INOPERABLE" should be spelled using lower case lettering since this word is not a Tech Spec definition. This change is typographical.

In ACTION c, the last sentence beginning "Otherwise" should be indented. This is a format correction to ensure that the last sentence applies only to ACTION c.

10. T.S. 3.4.11 (pg. 3/4 4-41) RCS Vents

Line two in the LCO change the word "buses" to "busses". This change is typographical.

11. T.S. 3/4.5.1 (pgs. 3/4 5-1 and 3/4 5-2) Accumulators

To LCO 3.5.1.a add the words "and power removed,". This change is for clarification since Surveillance Requirement 4.5.1.1 c verifies that the MCC compartment is open and tagged out of service.

On Surveillance 4.5.1.1 item a 1) change the word "volume" to "level". This change is necessary because the operator in the control room sees a borated water "level" indication instead of a "volume" indication for this equipment.

On page 5-2 add the word "and" at the end of Surveillance Requirement 4.5.1.1 b. This change is just grammatical.

12. T.S. 4.5.4 (pg. 3/4 5-9) Refueling Water Storage Tank

On Surveillance 4.5.4 item a 1) change the word "volume" to "level". This change is necessary because the operator in the control room sees a borated water "level" indication instead of a "volume" indication for this equipment.

13. T.S. 3.9.8.1 (pg. 3/4 9-9) RHR and Coolant Circulation

In the ACTION statement, third line, the word "ACTION" is spelled using upper case lettering. This word should be spelled using lower case lettering because the Tech Spec definition does not apply in this case. This change is typographical.

14. T.S. 3.10.1 (pg. 3/4 10-1) Special Test Exception

In T.S. 3.10.1 LCO, line 2, the words "shutdown margin" should be spelled using all upper case lettering. The Tech Spec definition for shutdown margin will then apply. This change is typographical.

15. T.S. 3.11.1.1 (pg. 3/4 11-1) Liquid Effluents

In T.S. 3.11.1.1 LCO, the spacing between lines 4 and 5 should be deleted. This change is typographical.

16. T.S. B3/4.10.3 (pg. B3/4 10-1) Physics Tests

In the second line change "10%" to "5%". This change is necessary so that the Bases Section becomes consistent with T.S. 3.10.3.a on page 3/4 10-3.

17. T.S. 5.1.3 (pg. 5-1) Site

In line 10 of T.S. 5.1.3 the words "LIMITING CONDITIONS FOR OPERATION" are spelled using upper case lettering. These words should be spelled using only initial capitalized letters because the Tech Spec definition does not apply in this case. This change is typographical.

18. Table 4.7-1 (pg. 3/4 7-8)

In item 2a under the column "Sample and Analysis Frequency" a hyphen needs to be added to the words "when-ever" and "radio-activity". This change is typographical.

19. Table 3.6-1 (pgs. 3/4 6-19 through 3/4 6-24)

Wherever the maximum isolation time indicates "N/A" change this to "N.A." This change is requested to be consistent with the Frequency Notation listed in Table 1.1 page 1-8.

20. T.S. 4.7.11.1 (pg. 3/4 7-42) Fire Rated Assemblies

In surveillance 4.7.11.1a the word "performing" should be spelled using an upper case "P". This change is typographical.

Also change "1." to "1)" and "2." to "2)" and "3." to "3)". This change is required for format consistency.

21. Table 4.8-2 (pg. 3/4 8-12)

Listed under Category B, Limits for Each Connected Cell, the "$\geq$1/4" should be changed to "$\leq$1/4". This change is typographical.

22. T.S. 3.8.3.1 (pg. 3/4 8-14) On Site Power Distribution

In ACTION b lines 4, 7 and 8 the words "Hot Standby" and "Cold Shutdown" appear a total of 4 times in lower case lettering. These words should be spelled using upper case lettering. The Tech Spec definition for these words would then apply. This change is typographical.

23. T.S. 4.6.2.2 (pg. 3/4 6-14) Spray Additive System

On surveillance 4.6.2.2 item b 1) change the word "volume" to "level". This change is necessary because the operator in the control room sees a borated water "level" indication instead of a "volume" indication for this equipment.

24. Bases 2.2.1 (pg. B2-5) Intermediate and Source Range, Nuclear Flux

In the title and first sentence of this Bases paragraph, change the word "Nuclear" to "Neutron". This change is required to make this trip designation consistent with other references in Tech Specs.

25. T.S. 3/4.7.10 (pg. 3/4 7-30) Fire Suppression Systems

In LCO 3.7.10.1 b items 1), 2), 3) and 4), capitalize the first letter of the first word in each item. This change is for format consistency.

26. Bases 3/4.1.3 (pg. B 3/4 1-4) Movable Control Assemblies

In the last paragraph third line add an "a" before "rod position deviation monitor". This is a grammatical change.

27. Section 6.5.1 f (pgs 6-10 and 6-11) Personnel

In items 1) a) through j) capitalize the first letter of the first word in each item. This change is for format consistency.

28. T.S. 4.7.10.1.1.b (pg. 3/4 7-31) Fire Suppression Systems

Delete the following words "on a STAGGERED TEST BASIS". There is only one pump to be considered in this surveillance, therefore it cannot be tested by the Tech Spec definition of STAGGERED TEST BASIS.

The National Fire Protection Association (NFPA) manual and codes provide a definition of its own for staggered test basis which describes alternating methods for starting pumps.

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SECTION | PAGE

3/4.5 EMERGENCY CORE COOLING SYSTEMS

3/4.6 CONTAINMENT SYSTEMS

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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 level of 7.0%,

2) A minimum boron concentration of 7000 ppm, and

3) A minimum solution temperature of 65°F.

b. The refueling water storage tank (RWST) with:

1) A minimum contained borated water level of 9.0%,

2) A minimum boron concentration of 2000 ppm, and

3) A minimum solution temperature of 35°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~~ level, 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 RWST temperature when it is the source of borated water and the outside air temperature is less than 35°F.

SURVEILLANCE REQUIREMENTS

4.1.2.6 Each borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1) Verifying the boron concentration in the water,

2) Verifying the contained borated water ~~volume~~ level of the water source, and

3) Verifying the Boric Acid Storage System solution temperature when it is the source of borated water.

b. At least once per 24 hours by verifying the RWST temperature when the outside air temperature is either less than 35°F or greater than 100°F.

c. At least once per 24 hours by verifying the RWST vent path temperature to be greater than or equal to 35°F when the outside air temperature is less than 35°F.

3/4.11.2.4 GASEOUS RADWASTE TREATMENT SYSTEM

The OPERABILITY of the WASTE GAS HOLDUP SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEM ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of this system be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable". This specification implements the requirements of 10 CFR 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50 and the design objectives given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the Gaseous Radwaste Treatment System were specified as a suitable fraction of the dose design objectives set forth in Section II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

This specification applies to the release of radioactive materials in gaseous effluents from each unit at the site. When shared Radwaste Treatment Systems are used by more than one unit on a site, the wastes from all units are mixed for shared treatment; by such mixing, the effluent releases cannot accurately be ascribed to a specific unit. An estimate should be made of the contributions from each unit based on input conditions, e.g., flow rates and radioactivity concentrations, or, if not practicable, the treated effluent releases may be allocated equally to each of the radioactive waste producing units sharing the Radwaste Treatment System. For determining conformance to LCOs, these allocations from shared Radwaste Treatment Systems are to be added to the releases specifically attributed to each unit to obtain the total releases per unit.

3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the WASTE GAS HOLDUP SYSTEM is maintained below the flammability limits of hydrogen and oxygen. Automatic control features are included in the system to prevent the hydrogen and oxygen concentrations from reaching these flammability limits. These automatic control features include isolation of the source of hydrogen and/or oxygen, automatic diversion to recombiners, or injection of dilutants to reduce the concentration below the flammability limits. Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

3/4.11.2.6 GAS DECAY TANKS

The tanks included in this specification are those tanks for which the quantity of radioactivity contained is not limited directly or indirectly by another Technical Specification. ~~to a quantity that is less than the quantity that provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting whole body exposure to a MEMBER OF THE PUBLIC at the nearest SITE BOUNDARY will not exceed 0.5 rem, the annual dose limit in 10 CFR Part 20.~~

Combine with next paragraph on page B 3/4 11-7 to make one paragraph.

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	DIGITAL CHANNEL OPERATIONAL TEST	ANALOG CHANNEL OPERATIONAL TEST
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release					
Liquid Radwaste Effluent Line (ORE-PR001)	D	P	R(3)	Q(1)	N.A.
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release					
a. Essential Service Water RCFC 1A and 1C Outlet Line (1RE-PR002)	D	M	R(3)	Q(2)	N.A.
b. Essential Service Water RCFC 1B and 1D Outlet (1RE-PR003)	D	M	R(3)	Q(2)	N.A.
c. Station Blowdown Line (ORE-PR010)	D	M	R(3)	Q(2)	N.A.
3. Flow Rate Measurement Devices					
a. Liquid Radwaste Effluent Line (loop-WX001)	D(4)	N.A.	R	N.A.	Q
b. Station Blowdown Line (loop-CW032)	D(4)	N.A.	R	N.A.	Q

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INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one Turbine Overspeed Protection System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one throttle valve or one governor valve per high pressure turbine steam line inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam line inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam line(s) or isolate the turbine from the steam supply within the next 6 hours.

b. With the above required Turbine Overspeed Protection System otherwise inoperable, within 6 hours isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.2 The above required Turbine Overspeed Protection System shall be demonstrated OPERABLE:

a. During turbine operation at least once per 31 days by direct observation of the movement of the valves below through one complete cycle from the running position:

   1) Four high pressure turbine throttle valves,
   2) Four high pressure turbine governor valves,
   3) Six turbine reheat stop valves,
   4) Six turbine reheat intercept valves, and

b. Within 7 days prior to entering MODE 3 from MODE 4, by cycling each of the 12 extraction steam nonreturn check valves from the closed position.

c. During turbine operation at least once per 31 days by direct observation, of freedom of movement of each of the 12 extraction steam nonreturn check valve weight arms.

d. At least once per 18 months by performance of CHANNEL CALIBRATION on the Turbine Overspeed Protection Systems, and

e. At least once per 40 months by disassembling at least one of each of the valves given in Specifications 4.3.4.2a. and b. above, and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

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3/4.4.3 PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3 The pressurizer shall be OPERABLE with at least two groups of pressurizer heaters each having a capacity of at least 150 kW and a water level of less than or equal to 92%.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With less than two groups of pressurizer heaters ~~operable~~ OPERABLE, restore at least two groups of pressurizer heaters to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

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

SURVEILLANCE REQUIREMENTS

4.4.3.1 The pressurizer water level shall be determined to be within its limit at least once per 12 hours.

4.4.3.2 The capacity of each of the above required groups of pressurizer heaters shall be verified by energizing the heaters and measuring circuit current at least once per 92 days.

4.4.3.3 The cross-tie for the pressurizer heaters to the ESF power supply shall be demonstrated OPERABLE at least once per 18 months by energizing the heaters.

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3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE
LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.6.1 The following Reactor Coolant System Leakage Detection Systems shall be OPERABLE:

a. The Containment Atmosphere Particulate Radioactivity Monitoring System,

b. The Containment Floor Drain and Reactor Cavity Flow Monitoring System, and

c. The Containment Gaseous Radioactivity Monitoring System.

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

ACTION:

a. With a. or c. of the above required Leakage Detection Systems ~~INOPERABLE~~ inoperable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed for gaseous and particulate radioactivity at least once per 24 hours when the required Gaseous or Particulate Radioactivity Monitoring System is inoperable; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With b. of the above required Leakage Detection Systems inoperable be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With a. and c. of the above required Leakage Detection Systems inoperable:

1) Restore either Monitoring System (a. or c.) to OPERABLE status within 72 hours and

2) Obtain and analyze a grab sample of the containment atmosphere for gaseous and particulate radioactivity at least once per 24 hours, and

3) Perform a Reactor Coolant System water inventory balance at least once per 8 hours.

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

SURVEILLANCE REQUIREMENTS

4.4.6.1 The Leakage Detection Systems shall be demonstrated OPERABLE by:

a. Containment Atmosphere Gaseous and Particulate Monitoring System-performance of CHANNEL CHECK, CHANNEL CALIBRATION, and DIGITAL CHANNEL OPERATIONAL TEST at the frequencies specified in Table 4.3-3,

b. Containment Floor Drain and Reactor Cavity Flow Monitoring System-performance of CHANNEL CALIBRATION at least once per 18 months, and

c. Verify the oil separator portion of the containment floor drain collection sump has been filled to the level of the overflow to the containment floor drain unidentified leakage collection weir box once per 18 months, following refueling, and prior to initial startup.

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REACTOR COOLANT SYSTEM

3/4.4.11 REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.11 At least one reactor vessel head vent path consisting of two valves in series powered from emergency ~~buses~~ busses shall be OPERABLE and closed.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

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

SURVEILLANCE REQUIREMENTS

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

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

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

c. Verifying flow through the reactor vessel head vent paths during venting operations at COLD SHUTDOWN or REFUELING.

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3/4.5 EMERGENCY CORE COOLING SYSTEMS

3/4.5.1 ACCUMULATORS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System accumulator shall be OPERABLE with:

a. The isolation valve open, and power removed,

b. A contained borated water level of between 31% and 63%,

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

d. A nitrogen cover-pressure of between 602 and 647 psig.

APPLICABILITY: MODES 1, 2, and 3*.

ACTION:

a. With one accumulator 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 accumulator 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 Each accumulator shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

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

2) Verifying that each accumulator isolation valve is open.

*Pressurizer pressure above 1000 psig.

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 70 gallons by verifying the boron concentration of the accumulator solution, and

c. At least once per 31 days when the RCS pressure is above 1000 psig by verifying that the MCC compartment is open and tagged out of service.

4.5.1.2 Each accumulator water level and pressure channel shall be demonstrated OPERABLE at least once per 18 months by the performance of a CHANNEL CALIBRATION.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 REFUELING WATER STORAGE TANK

LIMITING CONDITION FOR OPERATION

3.5.4 The refueling water storage tank (RWST) and the heat traced portions of the associated flow paths shall be OPERABLE with:

a. A minimum contained borated water level of 89%,

b. A minimum boron concentration of 2000 ppm,

c. A minimum water temperature of 35°F, and

d. A maximum water temperature of 100°F.

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

ACTION:

With the RWST 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 RWST shall be demonstrated OPERABLE:

a. At least once per 7 days by:

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

2) Verifying the boron concentration of the water.

b. At least once per 24 hours by verifying the RWST temperature when the outside air temperature is either less than 35°F or greater than 100°F.

c. At least once per 24 hours by verifying the RWST vent path temperature to be greater than or equal to 35°F when the outside air temperature is less than 35°F.

REFUELING OPERATIONS

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

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

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

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 2800 gpm at least once per 12 hours.

*The RHR loop may be removed from operation for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor vessel hot legs.

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3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODE 2.

ACTION:

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

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

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each full-length control rod either partially or fully withdrawn shall be determined at least once per 2 hours.

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

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3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (see Figure 5.1-1) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2 x 10^{-4} microCurie/ml total activity.

delete line above

APPLICABILITY: At all times.

ACTION:

a. With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, immediately restore the concentration to within the above limits.

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

SURVEILLANCE REQUIREMENTS

4.11.1.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of Table 4.11-1.

4.11.1.1.2 The results of the radioactivity analysis shall be used in accordance with the methodology and parameters in the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification 3.11.1.1.

3/4.10 SPECIAL TEST EXCEPTIONS

BASES

3/4.10.1 SHUTDOWN MARGIN

This special test exception provides that a minimum amount of control rod worth is immediately available for reactivity control when tests are performed for control rod worth measurement and shutdown margin determination. This special test exception is required to permit the periodic verification of the actual versus predicted core reactivity condition occurring as a result of fuel burnup or fuel cycling operations.

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

This special test exception permits individual control rods to be positioned outside of their normal group heights and insertion limits during the performance of such PHYSICS TESTS as those required to: (1) measure control rod worth, and (2) determine the reactor stability index and dampening factor under xenon oscillation conditions.

3/4.10.3 PHYSICS TESTS

This special test exception permits PHYSICS TESTS to be performed at less than or equal to ~~10%~~ 5% of RATED THERMAL POWER with the RCS T_{avg} slightly lower than normally allowed so that the fundamental nuclear characteristics of the core and related instrumentation can be verified. In order for various characteristics to be accurately measured, it is at times necessary to operate outside the normal restrictions of these Technical Specifications. For instance, to measure the moderator temperature coefficient at BOL, it is necessary to position the various control rods at heights which may not normally be allowed by Specification 3.1.3.6 which in turn may cause the RCS T_{avg} to fall slightly below the minimum temperature of Specification 3.1.1.4.

3/4.10.4 REACTOR COOLANT LOOPS

This special test exception permits reactor criticality under no flow conditions and is required to perform certain startup and PHYSICS TESTS while at low THERMAL POWER levels.

3/4.10.5 POSITION INDICATION SYSTEM-SHUTDOWN

This special test exception permits the Position Indication Systems to be inoperable during rod drop time measurements. The exception is required since the data necessary to determine the rod drop time is derived from the induced voltage in the position indicator coils as the rod is dropped. This induced voltage is small compared to the normal voltage and, therefore, cannot be observed if the Position Indication Systems remain OPERABLE.

5.0 DESIGN FEATURES

5.1 SITE

EXCLUSION AREA

5.1.1 The Exclusion Area shall be as shown in Figure 5.1-1.

LOW POPULATION ZONE

5.1.2 The Low Population Zone shall be as shown in Figure 5.1-2.

MAP DEFINING UNRESTRICTED AREAS AND SITE BOUNDARY FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

5.1.3 Information regarding radioactive gaseous and liquid effluents, which will allow identification of structures and release points as well as definition of UNRESTRICTED AREAS within the SITE BOUNDARY that are accessible to MEMBERS OF THE PUBLIC, shall be as shown in Figure 5.1-1. The definition of UNRESTRICTED AREA used in implementing these Technical Specifications has been expanded over that in 10 CFR 20.3 (a)(17). The UNRESTRICTED AREA boundary may coincide with the Exclusion (fenced) Area boundary, as defined in 10 CFR 100.3(a), but the UNRESTRICTED AREA does not include areas over water bodies. The concept of UNRESTRICTED AREAS, established at or beyond the SITE BOUNDARY, is utilized in the ~~LIMITING CONDITIONS FOR OPERATION~~ Limiting Conditions for Operation to keep levels of radioactive materials in liquid and gaseous effluents as low as is reasonably achievable, pursuant to 10 CFR 50.36a. For the Byron Station, the Exclusion Area and UNRESTRICTED AREA boundaries are the same.

5.2 CONTAINMENT

CONFIGURATION

5.2.1 The containment building is a steel lined, reinforced concrete building of cylindrical shape, with a dome roof and having the following design features:

a. Nominal inside diameter = 140 feet,

b. Nominal inside height = 222 feet,

c. Nominal thickness of concrete walls = 3.5 feet,

d. Nominal thickness of concrete dome = 3 feet,

e. Nominal thickness of concrete base slab = 12 feet,

f. Nominal thickness of steel liner = 0.25 inch, and

g. Net free volume = 2.8×10^6 cubic feet.

DESIGN PRESSURE AND TEMPERATURE

5.2.2 The containment building is designed and shall be maintained for a maximum internal pressure of 50 psig and a temperature of 250°F.

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TABLE 4.7-1

SECONDARY COOLANT SYSTEM SPECIFIC ACTIVITY

SAMPLE AND ANALYSIS PROGRAM

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY
1. Gross Radioactivity Determination*	At least once per 72 hours.
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	a) Once per 31 days, whenever the gross radioactivity determination indicates concentrations greater than 10% of the allowable limit for radioiodines.
	b) Once per 6 months, whenever the gross radioactivity determination indicates concentrations less than or equal to 10% of the allowable limit for radioiodines.

*A gross radioactivity analysis shall consist of the quantitative measurement of the total specific activity of the secondary coolant except for radionuclides with half-lives less than 10 minutes. Determination of the contributors to the gross specific activity shall be based upon those energy peaks identifiable with a 95% confidence level.

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
1. Phase "A" Isolation (Continued)			
52	1PR001A	Process Radiation	4.5
52	1PR001B	Process Radiation	4.5
52	1PR066	Process Radiation	5.0
12	1PS228A	Hydrogen Monitor	N.A. ~~N/A**~~
12	1PS229A	Hydrogen Monitor	N.A. ~~N/A**~~
12	1PS230A	Hydrogen Monitor	N.A. ~~N/A**~~
~~12~~ 31	1PS228B	Hydrogen Monitor	N.A. ~~N/A**~~
~~12~~ 31	1PS229B	Hydrogen Monitor	N.A. ~~N/A**~~
~~12~~ 31	1PS230B	Hydrogen Monitor	N.A. ~~N/A**~~
70	1PS9354A	Primary Process Sampling	10
70	1PS9354B	Primary Process Sampling	10
70	1PS9355A	Primary Process Sampling	10
70	1PS9355B	Primary Process Sampling	10
70	1PS9356A	Primary Process Sampling	10
70	1PS9356B	Primary Process Sampling	10
70	1PS9357A	Primary Process Sampling	10
70	1PS9357B	Primary Process Sampling	10
11	1RE9170	Reactor Bldg Equip Drains	10
11	1RE1003	Reactor Bldg Equip Drains	10
65	1RE9157	Reactor Bldg Equip Drains	10
65	1RE9159A	Reactor Bldg Equip Drains	10
65	1RE9159B	Reactor Bldg Equip Drains	10
65	1RE9160A	Reactor Bldg Equip Drains	10
65	1RE9160B	Reactor Bldg Equip Drains	10
27	1RY8025	PRT Nitrogen	10
27	1RY8026	PRT Nitrogen	10
27	1RY8033	PRT Nitrogen	10
44	1RY8028	PRT Make-up	10
55	1SI8964	Accumulator Fill	10
55	1SI8880	Nitrogen Supply to Accumulator	10
55	1SI8871	Accumulator Fill	10
55	1SI8888	Hot Leg Safety Injection	10
47	1RF026	Reactor Building Floor Drains	15
47	1RF027	Reactor Building Floor Drains	15

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
2. Phase "B" Isolation			
21	1CC9414	RCP Mtr Brng Return	10
21	1CC9416	RCP Mtr Brng Return	10
24	1CC685	RCP Thermal Barrier Return	10
24	1CC9438	RCP Thermal Barrier Return	10
25	1CC9413A	RCP Cooling Wtr Supply	10
3. Safety Injection			
71	1CV8105*	CVCS Charging	10
71	1CV8106*	CVCS Charging	10
7	1SX016B*	Essential Service Water	~~N/A~~ N.A.
9	1SX027B*	Essential Service Water	~~N/A~~ N.A.
14	1SX027A*	Essential Service Water	~~N/A~~ N.A.
15	1SX016A*	Essential Service Water	~~N/A~~ N.A.
26	1SI8801A*	Cold Leg Safety Injection	~~N/A~~ N.A.
26	1SI8801B*	Cold Leg Safety Injection	~~N/A~~ N.A.
92	1SI8811A*	Containment Recirc. Sump	~~N/A~~ N.A.
93	1SI8811B*	Containment Recirc. Sump	~~N/A~~ N.A.
4. Containment Ventilation Isolation			
94	1VQ003	Mini-Flow Purge Exhaust	5
94	1VQ005A	Mini-Flow Purge Exhaust	5
94	1VQ005B	Mini-Flow Purge Exhaust	5
94	1VQ005C	Mini-Flow Purge Exhaust	5
95	1VQ002A	Purge Exhaust	5
95	1VQ002B	Purge Exhaust	5
96	1VQ004A	Mini-Flow Purge Supply	5
96	1VQ004B	Mini-Flow Purge Supply	5
97	1VQ001A	Purge Supply	5
97	1VQ001B	Purge Supply	5
5. Containment Spray Actuation			
1	1CS007A	Containment Spray	30
16	1CS007B	Containment Spray	30
6. Main Steam Isolation			
77	1MS101D*	Main Steam	~~10.0~~ 6.0
78	1MS101A*	Main Steam	~~10.0~~ 6.0

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
6. Main Steam Isolation (Continued)			
85	1MS101B*	Main Steam	~~10.0~~ 6.0
86	1MS101C*	Main Steam	~~10.0~~ 6.0
7. Feedwater Isolation			
76	1FW009D*	Main Feedwater	5.0
76	1FW043D*	Main Feedwater	6.0
79	1FW009A*	Main Feedwater	5.0
79	1FW043A*	Main Feedwater	6.0
84	1FW009B*	Main Feedwater	5.0
84	1FW043B*	Main Feedwater	6.0
87	1FW009C*	Main Feedwater	5.0
87	1FW043C*	Main Feedwater	6.0
99	1FW035D*	Main Feedwater	6.0
99	1FW039D*	Main Feedwater	6.0
100	1FW035A*	Main Feedwater	6.0
100	1FW039A*	Main Feedwater	6.0
101	1FW035B*	Main Feedwater	6.0
101	1FW039B*	Main Feedwater	6.0
102	1FW035C*	Main Feedwater	6.0
102	1FW039C*	Main Feedwater	6.0
8. Remote Manual			
68	1RH8701A*	RH Suction	~~N/A~~ N.A
68	1RH8701B*	RH Suction	~~N/A~~
75	1RH8702A*	RH Suction	~~N/A~~
75	1RH8702B*	RH Suction	~~N/A~~
59	1SI8881*	Hot Leg Safety Injection	~~N/A~~
73	1SI8824*	Hot Leg Safety Injection	~~N/A~~
66	1SI8825*	Hot Leg RH Injection	~~N/A~~
60	1SI8823*	Cold Leg Safety Injection	~~N/A~~
50	1SI8890A*	Cold Leg RH Injection	~~N/A~~
51	1SI8890B*	Cold Leg RH Injection	~~N/A~~
26	1SI8843*	Cold Leg Safety Injection	~~N/A~~
33	1CV8355A*	RCP Seal Injection	~~N/A~~
33	1CV8355D*	RCP Seal Injection	~~N/A~~
53	1CV8355B*	RCP Seal Injection	~~N/A~~
53	1CV8355C*	RCP Seal Injection	~~N/A~~ N.A

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
8. Remote Manual (Continued)			
59	1SI8802A*	Hot Leg Safety Injection	N/A N.A.
73	1SI8802B*	Hot Leg Safety Injection	N/A
60	1SI8835*	Hot Leg Safety Injection	N/A
50	1SI8809A*	RH Cold Leg Injection	N/A
51	1SI8809B*	RH Cold Leg Injection	N/A
66	1SI8840*	Hot Leg Safety Injection	N/A
100	1AF013A*	Feedwater	N/A
100	1AF013E*	Feedwater	N/A
101	1AF013B*	Feedwater	N/A
101	1AF013F*	Feedwater	N/A
102	1AF013C*	Feedwater	N/A
102	1AF013G*	Feedwater	N/A
99	1AF013D*	Feedwater	N/A
99	1AF013H*	Feedwater	N/A
9. Manual			
37	1CV8346*	RCS Loop Fill	N/A
I3	1VQ016	Instrument Penetration	N/A
I3	1VQ017	Instrument Penetration	N/A
I3	1VQ018	Instrument Penetration	N/A
I3	1VQ019	Instrument Penetration	N/A
I5	1RY075	Instrument Penetration	N/A
30	1WM190	Make-Up Demin	N/A
57	1FC009	Spent Fuel Pool Cleaning	N/A
57	1FC010	Spent Fuel Pool Cleaning	N/A
32	1FC011	Spent Fuel Pool Cleaning	N/A
32	1FC012	Spent Fuel Pool Cleaning	N/A
77	1MS021D*	Main Steam	N/A
78	1MS021A*	Main Steam	N/A
85	1MS021B*	Main Steam	N/A
86	1MS021C*	Main Steam	N/A
AL	1PR002E	Process Radiation	N/A
AL	1PR033A	Process Radiation	N/A
AL	1PR033B	Process Radiation	N/A
AL	1PR002F	Process Radiation	N/A
AL	1PR033C	Process Radiation	N/A
AL	1PR033D	Process Radiation	N/A

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
9. Manual (Continued)			
99	1FW015D*	Feedwater	N/A
100	1FW015A*	Feedwater	N/A
101	1FW015B*	Feedwater	N/A
102	1FW015C*	Feedwater	N/A
10. Check			
28	1CV8113	RCP Seal Water Return	N/A
37	1CV8348*	RCS Loop Fill	N/A
6	1WØ007A	Chilled Water	N/A
10	1WØ007B	Chilled Water	N/A
21	1CC9534	RCP Mtr Brng Return	N/A
24	1CC9518	RCP Thermal Barrier Return	N/A
25	1CC9486	RCP Cooling Wtr Supply	N/A
1	1CS008A	Containment Spray	N/A
16	1CS008B	Containment Spray	N/A
39	1IA091	Instrument Air	N/A
30	1WM191	Make-Up Demin	N/A
52	1PR032	Process Radiation	N/A
AL	1PR002G	Process Radiation	N/A
AL	1PR002H	Process Radiation	N/A
12	1PS231A	Hydrogen Monitor	N/A
31 ~~12~~	1PS231B	Hydrogen Monitor	N/A
27	1RY8047	PRT Nitrogen	N/A
44	1RY8046	PRT Make-Up	N/A
26	1SI8815*	Safety Injection	N/A
50	1SI8818A*	Safety Injection	N/A
50	1SI8818D*	Safety Injection	N/A
51	1SI8818B*	Safety Injection	N/A
51	1SI8818C*	Safety Injection	N/A
59	1SI8905A*	Safety Injection	N/A
59	1SI8805D*	Safety Injection	N/A
60	1SI8819A*	Safety Injection	N/A
60	1SI8819B*	Safety Injection	N/A

N.A.

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
10. Check (Continued)			
60	1SI8819C*	Safety Injection	N/A
60	1SI8819D*	Safety Injection	N/A
66	1SI8841A*	Safety Injection	N/A
66	1SI8841B*	Safety Injection	N/A
73	1SI8905B*	Safety Injection	N/A
73	1SI8905C*	Safety Injection	N/A
55	1SI8968*	Safety Injection	N/A
34	1FP345*	Fire Protection	N/A
33	1CV8368A*	RCP Seal Injection	N/A
33	1CV8368D*	RCP Seal Injection	N/A
53	1CV8368B*	RCP Seal Injection	N/A
53	1CV8368C*	RCP Seal Injection	N/A
11. S/G Safeties/PORVs			
77	1MS013D*	Main Steam	N/A
77	1MS014D*	Main Steam	N/A
77	1MS015D*	Main Steam	N/A
77	1MS016D*	Main Steam	N/A
77	1MS017D*	Main Steam	N/A
78	1MS013A*	Main Steam	N/A
78	1MS014A*	Main Steam	N/A
78	1MS015A*	Main Steam	N/A
78	1MS016A*	Main Steam	N/A
78	1MS017A*	Main Steam	N/A
85	1MS013B*	Main Steam	N/A
85	1MS014B*	Main Steam	N/A
85	1MS015B*	Main Steam	N/A
85	1MS016B*	Main Steam	N/A
85	1MS017B*	Main Steam	N/A
86	1MS013C*	Main Steam	N/A
86	1MS014C*	Main Steam	N/A
86	1MS015C*	Main Steam	N/A
86	1MS016C*	Main Steam	N/A
86	1MS017C*	Main Steam	N/A
77	1MS018D*	Main Steam	20
78	1MS018A*	Main Steam	20
85	1MS018B*	Main Steam	20
86	1MS018C*	Main Steam	20

N.A

*Not subject to Type C leakage tests.

**Proper valve operation will be demonstrated by verifying that the valve strokes to its required position.

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3/4.7.11 FIRE RATED ASSEMBLIES

LIMITING CONDITION FOR OPERATION

3.7.11 All fire rated assemblies (walls, floor/ceilings, cable tray enclosures and other fire barriers) separating safety-related fire areas or separating portions of redundant systems important to safe shutdown within a fire area and all sealing devices in fire-rated assembly penetrations (fire doors, fire windows, fire dampers, cable, piping and ventilation duct penetration seals) shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within 1 hour either establish a continuous fire watch on at least one side of the affected assembly, or verify the OPERABILITY of fire detectors on at least one side of the inoperable assembly and establish an hourly fire watch patrol.

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

SURVEILLANCE REQUIREMENTS

4.7.11.1 At least once per 18 months the above required fire barrier penetrations and penetration sealing devices shall be verified OPERABLE by:

a. Performing a visual inspection of:

1) The exposed surfaces of each fire rated assembly,

2) Each fire window/fire damper and associated hardware,

3) At least 10% of each type of sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10% of each type of sealed penetration shall be made. This inspection process shall continue until a 10% sample with no apparent changes in appearance or abnormal degradation is found. Samples shall be selected such that each penetration seal will be inspected every 15 years.

b. Performing a functional test of at least 10% of the fire dampers. If any nonconforming dampers are found, an additional 10% will be functionally tested. This process will continue until an acceptable sample is found.

4.7.11.2 Each of the above required fire doors shall be verified OPERABLE by inspecting the release and closing mechanism and latches at least once per 6 months, and by verifying:

a. The OPERABILITY of the Fire Door Supervision System for each electrically supervised fire door by performing a TRIP ACTUATING DEVICE OPERATIONAL TEST at least once per 31 days,

b. That each locked closed fire door is closed at least once per 7 days, and

c. That each unlocked fire door without electrical supervision is closed at least once per 24 hours.

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TABLE 4.8-2

BATTERY SURVEILLANCE REQUIREMENTS

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

TABLE NOTATIONS

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

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

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

(4) Corrected for electrolyte temperature and level.

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

(6) Corrected for average electrolyte temperature.

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ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following electrical busses shall be energized in the specified manner:

a. Division 11 A.C. ESF Busses consisting of:

1) 4160-Volt Bus 141,
2) 480-Volt Bus 131X, and
3) 480-Volt Bus 131Z.

b. Division 12 A.C. ESF Busses consisting of:

1) 4160-Volt Bus 142
2) 480-Volt Bus 132X, and
3) 480-Volt Bus 132Z.

c. 120-Volt A.C. Instrument Bus 111 energized from its associated inverter connected to D.C. Bus 111,

d. 120-Volt A.C. Instrument Bus 113 energized from its associated inverter connected to D.C. Bus 111,

e. 120-Volt A.C. Instrument Bus 112 energized from its associated inverter connected to D.C. Bus 112, and

f. 120-Volt A.C. Instrument Bus 114 energized from its associated inverter connected to D.C. Bus 112.

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

ACTION:

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

b. With one A.C. instrument bus either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: 1) reenergize the A.C. instrument bus within 2 hours or be in at least ~~Hot Standby~~ HOT STANDBY within the next 6 hours and in ~~Cold Shutdown~~ COLD SHUTDOWN within the following 30 hours, and 2) reenergize the A.C. instrument bus from its associated inverter connected to its associated D.C. bus within 24 hours or be in at least ~~Hot Standby~~ HOT STANDBY within the next 6 hours and in ~~Cold Shutdown~~ COLD SHUTDOWN within the following 30 hours.

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CONTAINMENT SYSTEMS

SPRAY ADDITIVE SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 The Spray Additive System shall be OPERABLE with:

a. A spray additive tank containing a level of between 78.6% and 90.3% of between 30% and 36% by weight NaOH solution, and

b. Two spray additive eductors each capable of adding NaOH solution from the spray additive tank to a Containment Spray System pump flow.

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

ACTION:

With the Spray Additive System inoperable, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the Spray Additive System to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 The Spray Additive System shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position;

b. At least once per 6 months by:

1) Verifying the contained solution ~~volume~~ level in the tank, and

2) Verifying the concentration of the NaOH solution by chemical analysis.

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 Containment Spray Actuation test signal; and

d. At least once per 5 years by verifying each water flow rate equivalent to 55(+5,-0) gallons per minute for 30% NaOH from the eductor test connections in the Spray Additive System:

1) CS26A 68^{+6}_{-0} gpm (Train A), and

2) CS26B 68^{+6}_{-0} gpm (Train B).

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Power Range, Neutron Flux, High Rates (Continued)

The Power Range Negative Rate trip provides protection for control rod drop accidents. At high power a single or multiple rod drop accident could cause local flux peaking which could cause an unconservative local DNBR to exist. The Power Range Negative Rate trip will prevent this from occurring by tripping the reactor. No credit is taken for operation of the Power Range Negative Rate trip for those control rod drop accidents for which DNBRs will be greater than the limit value.

Intermediate and Source Range, ~~Nuclear~~ Neutron Flux

The Intermediate and Source Range, ~~Nuclear~~ Neutron Flux trips provide core protection during reactor STARTUP to mitigate the consequences of an uncontrolled rod cluster control assembly bank withdrawal from a subcritical condition. These trips provide redundant protection to the Low Setpoint trip of the Power Range, Neutron Flux channels. The Source Range channels will initiate a Reactor trip at about 10^5 counts per second unless manually blocked when P-6 becomes active. The Intermediate Range channels will initiate a Reactor trip at a current level equivalent to approximately 25% of RATED THERMAL POWER unless manually blocked when P-10 becomes active.

Overtemperature ΔT

The Overtemperature ΔT trip provides core protection to prevent DNB for all combinations of pressure, power, coolant temperature, and axial power distribution, provided that the transient is slow with respect to piping transit delays from the core to the temperature detectors (about 4 seconds), and pressure is within the range between the Pressurizer High and Low Pressure trips. The Setpoint is automatically varied with: (1) coolant temperature to correct for temperature induced changes in density and heat capacity of water and includes dynamic compensation for piping delays from the core to the loop temperature detectors, (2) pressurizer pressure, and (3) axial power distribution. With normal axial power distribution, this Reactor trip limit is always below the core Safety Limit as shown in Figure 2.1-1. If axial peaks are greater than design, as indicated by the difference between top and bottom power range nuclear detectors, the Reactor trip is automatically reduced according to the notations in Table 2.2-1.

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3/4.7.10 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SUPPLY SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.10.1 The Fire Suppression Water Supply System shall be OPERABLE with:

a. Two fire suppression pumps with their discharge aligned to the fire suppression header, and

b. An OPERABLE flow path capable of taking suction from the flume and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to:

   1) The yard hydrant isolation valves (for hydrants near buildings containing safety-related equipment),

   2) The last valve ahead of each hose standpipe as required by Specification 3.7.10.5,

   3) The last valve ahead of the deluge valve (on the diesel generator fuel oil storage room foam system and manual containment charcoal filter deluge systems), or

   4) Flow alarm valves (on sprinkler systems) as required by Specification 3.7.10.2.

APPLICABILITY: At all times.

ACTION:

a. With one pump and/or one water supply inoperable, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

b. With the Fire Suppression Water Supply System otherwise inoperable establish a backup Fire Suppression Water Supply System within 24 hours.

SURVEILLANCE REQUIREMENTS

4.7.10.1.1 The Fire Suppression Water Supply System shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the contained water supply volume,

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MOVABLE CONTROL ASSEMBLIES (Continued)

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.

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

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 550°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

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

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OFFSITE (Continued)

d. Records

1) Reviews, audits, and recommendations shall be documented and distributed as covered in Specification 6.5.1a. and 6.5.1b.; and

2) Copies of documentation, reports, and correspondence shall be kept on file at the station.

e. Procedures

Written administrative procedures shall be prepared and maintained for the offsite reviews and investigative functions described in Specification 6.5.1a. and for the audit functions described in Specification 6.5.1b. Those procedures shall cover the following:

1) Content and method of submission of presentations to the Supervisor of the Offsite Review and Investigative Function,

2) Use of committees and consultants,

3) Review and approval,

4) Detailed listing of items to be reviewed,

5) Method of: (1) appointing personnel, (2) performing reviews, investigations, (3) reporting findings and recommendations of reviews and investigations, (4) approving reports, and (5) distributing reports, and

6) Determining satisfactory completion of action required based on approved findings and recommendations reported by personnel performing the review and investigative function.

f. Personnel

1) The persons, including consultants, performing the review and investigative function, in addition to the Supervisor of the Offsite Review and Investigative Function, shall have expertise in one or more of the following disciplines as appropriate for the subject or subjects being reviewed and investigated:

a) Nuclear power plant technology,
b) Reactor operations,
c) Utility operations,
d) Power plant design,
e) Reactor engineering,
f) Radiological safety,
g) Reactor safety analysis,

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OFFSITE (Continued)

h) Instrumentation and control,
i) Metallurgy, and
j) Any other appropriate disciplines required by unique characteristics of the facility.

2) Individuals performing the Review and Investigative Function shall possess a minimum formal training and experience as listed below for each discipline.

a) Nuclear Power Plant Technology

Engineering graduate or equivalent with 5 years experience in the nuclear power field design and/or operation.

b) Reactor Operations

Engineering graduate or equivalent with 5 years experience in nuclear power plant operations.

c) Utility Operations

Engineering graduate or equivalent with at least 5 years of experience in utility operation and/or engineering.

d) Power Plant Design

Engineering graduate or equivalent with at least 5 years of experience in power plant design and/or operation.

e) Reactor Engineering

Engineering graduate or equivalent. In addition, at least 5 years of experience in nuclear plant engineering, operation, and/or graduate work in nuclear engineering or equivalent in reactor physics is required.

f) Radiological Safety

Engineering graduate or equivalent with at least 5 years of experience in radiation control and safety.

g) Reactor Safety Analysis

Engineering graduate or equivalent with at least 5 years of experience in nuclear engineering.

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SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days ~~on a STAGGERED TEST BASIS~~ by starting the electric motor-driven pump and operating it for at least 15 minutes on recirculation flow, ×

c. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position,

d. At least once per 6 months by performance of a system ring header flush,

e. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel,

f. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:

1) Verifying that each fire pump develops a discharge of 150% of rated capacity at 65% of rated pressure (3750 gpm ± 10% gpm at 107 ± 10% psig), and recording measured performance at minimum and rated loads.

2) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and

3) Verifying that each fire suppression pump starts (sequentially) to maintain the fire suppression water system pressure greater than or equal to 125 psig.

g. At least once per 3 years by performing a flow test of the system in accordance with Chapter 8, Section 16 of the Fire Protection Handbook, 15th Edition, published by the National Fire Protection Association.

4.7.10.1.2 The fire pump diesel engine shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying:

1) The fuel storage tank contains at least 325 gallons of fuel, and

2) The diesel starts from ambient conditions and operates for at least 30 minutes on recirculation flow.

ATTACHMENT 21

BYRON UNIT 1 AND 2 TECH SPECS

These are the changes required to the current Unit 1 Tech Specs to make them a combined Byron Unit 1 and 2 Tech Specs.

NUREG-~~[illegible]~~

x

Technical Specifications
Byron Station
x Unit No. 1 and No. 2

Docket No. STN 50-454 and STN-50-455

Appendix "A" to
x License No. NPF-~~23~~ ____

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TECHNICAL SPECIFICATIONS

FOR

BYRON STATION

UNITS NO. 1 and No. 2

DOCKET NOS. STN 50-454 and 50-455

OCT 26 1984

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

SECTION | PAGE

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TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (SE)	TRIP SETPOINT	ALLOWABLE VALUE
12. Reactor Coolant Flow-Low	2.5	1.77	0.6	≥90% of loop ~~design flow*~~ minimum measured flow*	≥89.2% of loop ~~design flow*~~ minimum measured flow*
13. Steam Generator Water Level Low-Low					
a. Unit 1	27.1	18.28	1.5	≥40.8% of narrow range instrument span	≥39.1% of narrow range instrument span
b. Unit 2	17.0	14.78	1.5	≥17% of narrow range instrument span	≥15.3% of narrow range instrument span
14. Undervoltage - Reactor Coolant Pumps	12.0	0.7	0	≥5268 volts - each bus	≥4728 volts - each bus
15. Underfrequency - Reactor Coolant Pumps	14.4	13.3	0	≥57.0 Hz	≥56.5 Hz
16. Turbine Trip					
a. Emergency Trip Header Pressure	N.A.	N.A.	N.A.	≥540 psig	≥520 psig
b. Turbine Throttle 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.
18. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	N.A.	N.A.	N.A.

~~*Loop design flow~~ = 97,600 gpm

*Minimum measured flow

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3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding specifications is required during the OPERATIONAL MODES or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a specification shall exist when the requirements of the Limiting Condition for Operation and associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required.

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

a. At least HOT STANDBY within the next 6 hours,
b. At least HOT SHUTDOWN within the following 6 hours, and
c. At least COLD SHUTDOWN within the subsequent 24 hours.

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

This specification is not applicable in MODE 5 or 6.

3.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the conditions for the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements. Exceptions to these requirements are stated in the individual specifications.

NEW

3.0.5 Limiting Conditions for Operation including the associated ACTION requirements shall apply to each unit individually unless otherwise indicated as follows:

a. Whenever the Limiting Conditions for Operation refers to systems or components which are shared by both units, the ACTION requirements will apply to both units simultaneously.

b. Whenever the Limiting Conditions for Operation applies to only one unit, this will be identified in the APPLICABILITY section of the specification; and

c. Whenever certain portions of a specification contain operating parameters, Setpoints, etc., which are diferent for each unit, this will be identified in parentheses, footnotes or body of the requirement.

APPLICABILITY

SURVEILLANCE REQUIREMENTS (Continued)

b. Surveillance intervals specified in Section XI, 1980 Edition, Winter 1981 Addenda, of the ASME Boiler and Pressure Vessel Code for the inservice inspection and testing activities shall be applicable as follows in these Technical Specifications:

ASME BOILER AND PRESSURE VESSEL CODE AND APPLICABLE ADDENDA TERMINOLOGY FOR INSERVICE INSPECTION AND TESTING ACTIVITIES	REQUIRED FREQUENCIES FOR PERFORMING INSERVICE INSPECTION AND TESTING ACTIVITIES
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days

c. The provisions of Specification 4.0.2 are applicable to the above required frequencies for performing inservice inspection and testing activities;

d. Performance of the above inservice inspection and testing activities shall be in addition to other specified Surveillance Requirements; and

e. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any Technical Specification.

4.0.6 Surveillance Requirements shall apply to each unit individually unless otherwise indicated as stated in Specification 3.0.5 for individual specifications or whenever certain portions of a specification contain surveillance parameters different for each unit, which will be identified in parentheses, footnotes or body of the requirement.

NEW ↑

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TABLE 3.3-1 (Continued)
ACTION STATEMENTS (Continued)

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement suspend all operations involving positive reactivity changes.

ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or within the next hour open the reactor trip breakers, suspend all operations involving positive reactivity changes, and verify valves 1CV-111B, 1CV-8428, 1CV-8439, 1CV-8441 and 1CV-8435 are closed and secured in position. With no channels OPERABLE verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, and take the actions stated above within 1 hour and verify compliance at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour; and

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels per Specification 4.3.1.1.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 8 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

ACTION 9 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

ACTION 10 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the Reactor trip breakers within the next hour.

ACTION 11 - With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the inoperable channels are placed in the tripped condition within 1 hour.

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
6. Auxiliary Feedwater					
a. Manual Initiation	2	1	2	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 Pump	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 Diesel-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. Undervoltage - RCP Bus-Start Motor-Driven Pump and Diesel-Driven Pump	4-1/bus	2	3	1, 2	19*
e. Safety Injection - Start Motor-Driven Pump and Diesel-Driven Pump	See Item 1. above for all Safety Injection initiating functions and requirements.				
f. Division 11 ESF Bus Undervoltage-Start Motor-Driven Pump (Start as part of DG sequencing)	2	2	2	1, 2, 3, 4	25a*

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TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (SE)	TRIP SETPOINT	ALLOWABLE VALUE
4. Steam Line Isolation					
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-2	7.7	0.71	1.5	≤8.2 psig	≤9.2 psig
d. Steam Line Pressure-Low (Above P-11)	21.2	14.81	1.5	≥640 psig*	≥617 psig*
e. Steam Line Pressure Negative Rate-High (Below P-11)	8.0	0.5	0	≤100 psi**	≤111.5 psi**
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
b. Steam Generator Water Level-High-High (P-14)					
1) Unit 1	6.0	4.28	1.5	≤81.4% of narrow range instrument span	≤82.7% of narrow range instrument span
2) Unit 2	5.0	2.18	1.5	≤ 78.[illegible]% of narrow range instrument span	≤ 79.9% of narrow range instrument span
c. Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.				

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TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (SE)	TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater					
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. Steam Generator Water Level-Low-Low-Start Motor-Driven Pump and Diesel-Driven Pump					
1) Unit 1	27.1	18.28	1.5	≥40.8% of narrow range instrument span	≥39.1% of narrow range instrument span
2) Unit 2	17.0	14.78	1.5	≥ 17% of narrow range instrument span	≥15.3% of narrow range instrument span
d. Undervoltage-RCP Bus-Start Motor Driven Pump and Diesel-Driven Pump	N.A.	N.A.	N.A.	≥5268 volts	≥4728 volts
e. Safety Injection-Start Motor-Driven Pump and Diesel-Driven Pump	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.				

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TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (SE)	TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater (Continued)					
f. Division 11, ESF Bus Undervoltage-Start Motor-Driven Pump	N.A.	N.A.	N.A.	2870 volts	2730 volts
g. Auxiliary Feedwater Pump Suction Pressure-Low (Transfer to Essential Service Water)	N.A.	N.A.	N.A.	1.22" Hg vac	2" Hg vac
7. Automatic Opening of Containment Sump Suction Isolation Valves					
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.
b. RWST Level-Low-Low	N.A.	N.A.	N.A.	46.7%	44.7%
Coincident with Safety Injection	See Item 1. above for Safety Injection Trip Setpoints and Allowable Values.				

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TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
7. Steam Generator Water Level-Low-Low	
a. Motor-Driven Auxiliary Feedwater Pump	≤60
b. Diesel-Driven Auxiliary Feedwater Pumps	≤60
8. Containment Pressure-High-2	
Steam Line Isolation	≤7
9. RWST Level-Low-Low Coincident with Safety Injection	
Automatic Opening of Containment Sump Suction Isolation Valves	≤100
10. Undervoltage RCP Bus	
a. Motor-Driven Auxiliary Feedwater Pump	≤60
b. Diesel-Driven Auxiliary Feedwater Pump	≤60
11. Division 11 for unit 1 (Division 21 for unit 2) ESF Bus Undervoltage	
Motor-Driven Auxiliary Feedwater Pump	≤60
12. Loss of Power	
a. ESF Bus Undervoltage	≤1.9
b. Grid Degraded Voltage	≤310 ± 30 delay
13. Steam Line Pressure - Negative Rate-High (Below P-11)	
Steam Line Isolation	≤7
14. Phase "A" Isolation	
Containment Vent Isolation	≤7
15. Auxiliary Feedwater Pump Suction Pressure-Low-Low	
Automatic Switchover to ESW	N.A.

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

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. Turbine Trip and Feedwater (Continued)								
b. Steam Generator Water Level-High-High (P-14)	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2
c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
6. Auxiliary Feedwater								
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 Relay	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3
c. Steam Generator Water Level-Low-Low	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Undervoltage-RCP Bus	N.A.	R	N.A.	M	N.A.	N.A.	N.A.	1, 2
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
f. Division 11 ESF Bus Undervoltage for Unit 1 (Division 21 for Unit 2)	N.A.	R	N.A.	M(2)	N.A.	N.A.	N.A.	1, 2, 3, 4
g. Auxiliary Feedwater Pump Suction Pressure-Low	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
7. Automatic Opening of Containment Sump Suction Isolation Valves								

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TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

FUNCTIONAL UNIT	CHANNELS TO TRIP/ALARM	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	ACTION
1. Fuel Building Isolation-Radioactivity-High and Criticality (ORE-AR055/56)	1	2	*	$\leq$5 mR/h	29
2. Containment Isolation-Containment Radioactivity-High (~~1RE-AR011/12~~)[a]					
a) Unit 1 (1RE-AR011/12)	1	2	All	**	26
b) Unit 2 (2RE-AR011/12)	1	2	ALL	**	26
3. Gaseous Radioactivity-RCS Leakage Detection					
a) Unit 1 (1RE-PR011B)	N.A.	1	1, 2, 3, 4	N.A.	28
b) Unit 2 (2RE-PR011B)	N.A	1	1, 2, 3,	N.A.	28
4. Particulate Radioactivity-RCS Leakage Detection					
a) Unit 1 (1RE-PR011A)	N.A.	1	1, 2, 3, 4	N.A.	28
b) Unit 2 (2RE-PR011A)	N.A.	1	1, 2, 3, 4	N.A.	28
5. Main Control Room Isolation-Outside Air Intake-Gaseous Radioactivity-High (ORE-PR031B/32B and ORE-PR033B/34B)	1	2 per intake	All	$\leq$1.0 E-5 μCi/cc	27

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TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED	
1. Fuel Building Isolation-Radioactivity High and Criticality (ORE-AR055/56)	S	R	M	*	
2. Containment Isolation-Containment Radioactivity-High ~~(1RE-AR011/12)*~~					
a) Unit 1 (1RE-AR[illegible])	S	R	M	All	
b) Unit 2 (2RE-AR[illegible])	S	R	M	All	X
3. Gaseous Radioactivity-RCS Leakage Detection					
a) Unit 1 (1RE-PR011B)	S	R	M	1, 2, 3, 4	
b) Unit 2 (2RE-PR011B)	S	R	M	1, 2, 3, 4	X
4. Particulate Radioactivity-RCS Leakage Detection					
a) Unit 1 (1RE-PR011A)	S	R	M	1, 2, 3, 4	
b) Unit 2 (2RE-PR011A)	S	R	M	1, 2, 3, 4	X
5. Main Control Room Isolation-Outside Air Intake-Gaseous Radioactivity High (ORE-PR031B/32B and ORE-PR033B/34B)	S	R	M	All	

*With new fuel or irradiated fuel in the fuel storage areas or fuel building.

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TABLE 3.3-9

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
1. Intermediate Range Neutron Flux	PL06J	2	1
2. Source Range Neutron Flux	PL06J	2	1
3. Reactor Coolant Temperature - Wide Range			
a. Hot Leg	PL05J	1/loop	1/loop
b. Cold Leg	PL05J	1/loop	1/loop
4. Pressurizer Pressure	PL06J	1	1
5. Pressurizer Level	PL06J	2	1
6. Steam Generator Pressure	PL04J/PL05J	1/stm gen	1/stm gen
7. Steam Generator Level	PL04J	1/stm gen	1/stm gen
8. RHR Flow Rate	LOCAL	2	1
9. RHR Temperature	LOCAL	2	1
10. Auxiliary Feedwater Flow Rate	PL04J/PL05J	2/stm gen	1/stm gen

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FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.7 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-11a for Unit 1 (Table 3.3-11b for Unit 2) shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTION:

a. With any, but not more than one-half the total in any fire zone, fire detection instruments shown in Table 3.3-11 inoperable, restore the inoperable instrument(s) to OPERABLE status within 14 days or within the next 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.

b. With more than one-half of the fire detection instruments in any fire zone shown in Table 3.3-11 inoperable or with any fire suppression instruments shown in Table 3.3-11, inoperable, or with any two or more adjacent fire detection instruments shown in Table 3.3-11 inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.

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

SURVEILLANCE REQUIREMENTS

4.3.3.7.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

TABLE 3.3-11a

FIRE DETECTION INSTRUMENTS
(Unit 1)

INSTRUMENT LOCATION	INSTRUMENT TYPE*	TOTAL NUMBER OF INSTRUMENTS		
		Heat	Flame	Smoke
1. Containment ***				
Zone 11 Elev 426	Suppression	1 **		
Zone 12 Elev 426	Suppression	1 **		
Zone 2 Elev 401	Detection			2
Zone 3 Elev 401	Detection			2
Zone 4 Elev 401	Detection			2
Zone 5 Elev 401	Detection			2
Zone 6 Elev 426	Detection			6
Zone 76 Elev 426	Detection			13
Zone 7 Elev 414	Detection			7
Zone 24 Elev 414	Detection			16
2. Control Room				
Zone 29 Elev 383	Detection			4
Zone 68 Elev 451	Detection			3
Zone 69 Elev 451	Detection			12
Zone 75 Elev 451	Detection			20
Zone 68 Elev 451 (unit 2)	Detection			3
3. Switchgear Rooms				
Zone 66 Elev 451	Detection			10
Zone 77 Elev 426	Detection			21
Zone 78 Elev 426	Detection			19
4. Upper Cable Spreading Room				
Zone 41 Elev 463	Detection			4
Zone 42 Elev 463	Detection			4
Zone 43 Elev 463	Detection			8
Zone 44 Elev 463	Detection			8
Zone 45 Elev 463	Detection			10
Zone 46 Elev 463	Detection			10
Zone 47 Elev 463	Detection			5
Zone 48 Elev 463	Detection			5
Lower Cable Spreading Room				
Zone 49 Elev 439	Detection			23
Zone 50 Elev 439	Detection			23
Zone 51 Elev 439	Detection			13
Zone 52 Elev 439	Detection			13
Zone 53 Elev 439	Detection			9
Zone 54 Elev 439	Detection			9
Zone 55 Elev 439	Detection			6
Zone 56 Elev 439	Detection			6
5. Remote Shutdown Panel				
Zone 13 Elev 383	Detection			7

TABLE 3.3-11 (Continued)

FIRE DETECTION INSTRUMENTS
(Unit 1)

INSTRUMENT LOCATION	INSTRUMENT TYPE*	TOTAL NUMBER OF INSTRUMENTS		
		Heat	Flame	Smoke
6. Station Battery Room				
Zone 67 Elev 451	Detection			13
7. Diesel Generator Room				
Zone 37 Elev 401	Suppression	6		
Zone 38 Elev 401	Suppression	6		
Zone 71 Elev 401	Detection		1	
Zone 72 Elev 401	Detection		1	
8. Diesel Fuel Storage				
Zone 39 Elev 401	Suppression	1		
Zone 40 Elev 401	Suppression	1		
Zone 27 Elev 383	Suppression	3		
Zone 28 Elev 383	Suppression	3		
Zone 10 Elev 383	Detection			6
9. Safety Related Pumps				
Zone 41 Elev 383	Suppression	2		
Zone 42 Elev 383	Suppression	1		
Zone 16 Elev 364	Detection			2
Zone 18 Elev 364	Detection			10
Zone 19 Elev 364	Detection			3
Zone 20 Elev 346	Detection			3
Zone 21 Elev 346	Detection			3
Zone 52 RSH	Suppression	8		
Zone 11 Elev 330 (unit 2)	Detection			23
10. Fuel Storage				
Zone 39 Elev 401	Detection			29
Zone 38 Elev 426	Detection		3	
11. See next sheet				

TABLE NOTATIONS

*A single detector in a zone marked "Detection" will alarm in the Main Control Room. A single detector in a zone marked "Suppression" will initiate suppression and alarm in the Main Control Room.

**These are Containment Ventilation temperature switches. Upon receipt of a Hi-Hi temperature, suppression must be manually initiated. These switches are not 72D supervised.

***The fire detection instruments located within the containment are not required to be OPERABLE during the performance of Type A containment leakage rate tests.

INSTRUMENT LOCATION	INSTRUMENT TYPE[*]	TOTAL NUMBER OF INSTRUMENTS		
11. Auxiliary Building		Heat	Flame	Smoke
ZONE 70 ELEV 451	DETECTION			11
~~ZONE 73 ELEV 426~~	~~DETECTION~~			~~19~~
~~ZONE 66 ELEV 451~~	~~DETECTION~~			~~10~~
ZONE 17 ELEV 364	DETECTION			37
ZONE 40 ELEV 364	DETECTION			7
ZONE 11 ELEV 383	DETECTION			37
ZONE 8 ELEV 401	DETECTION			36
ZONE 23 ELEV 426	DETECTION			6
ZONE 25 ELEV 467	DETECTION			7
~~ZONE 26 ELEV 364~~	~~DETECTION~~			~~12~~
ZONE 64 ELEV 401	DETECTION			5
ZONE 65 ELEV 401	DETECTION			5
~~ZONE 12 ELEV 383~~	~~DETECTION~~			~~7~~
ZONE 14 ELEV 401	DETECTION			4
ZONE 15 ELEV 401	DETECTION			4
ZONE 18 ELEV 364	DETECTION			10
ZONE 17 ELEV 346	DETECTION (UNIT 2)			32
ZONE 40 ELEV 346	DETECTION (UNIT 2)			12
ZONE 12 ELEV 459	DETECTION (UNIT 2)			11
ZONE 22 ELEV 467	DETECTION (UNIT 2)			18
ZONE 62 ELEV 451	DETECTION (UNIT 2)			11
ZONE 61 ELEV 439	DETECTION (UNIT 2)			7
ZONE 75 ELEV 426	DETECTION (UNIT 2)			33
12 Miscellaneous				
Zone 26 Elev 864	Detection			12

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TABLE 3.3-11 b

FIRE DETECTION INSTRUMENTS
(UNIT 2)

INSTRUMENT LOCATION	INSTRUMENT TYPE*	TOTAL NUMBER OF INSTRUMENTS Heat	Flame	Smoke
1. Containment ***				
Zone 11 Elev 425	Suppression	1 **		
Zone 12 Elev 425	Suppression	1 **		
Zone 2 Elev 401	Detection			2
Zone 3 Elev 401	Detection			2
Zone 4 Elev 401	Detection			2
Zone 5 Elev 401	Detection			2
Zone 6 Elev 425	Detection			6
Zone 76 Elev 425	Detection			~~15~~ 9
Zone 7 Elev 414	Detection			~~7~~ 6
Zone 24 Elev 414	Detection			~~16~~ 10
2. Control Room				
Zone 24 Elev 383 (unit 1)	Detection			4
Zone 68 Elev 451	Detection			3
Zone 69 Elev 451	Detection			~~12~~ 14
Zone 75 Elev 451 (unit 1)	Detection			20
Zone 68 Elev 451 (unit 1)	Detection			3
3. Switchgear Rooms				
Zone 66 Elev 451	Detection			6
Zone 77 Elev 425	Detection			~~2~~ 9
Zone 78 Elev 425	Detection			~~8~~ 9
4. Upper Cable Spreading Room				
Zone 41 Elev 463	Detection			4
Zone 42 Elev 463	Detection			4
Zone 43 Elev 463	Detection			8
Zone 44 Elev 463	Detection			8
Zone 45 Elev 463	Detection			~~[illegible]~~ 9
Zone 46 Elev 463	Detection			~~[illegible]~~ 9
Zone 47 Elev 463	Detection			5
Zone 48 Elev 463	Detection			5
Lower Cable Spreading Room				
Zone 49 Elev 439	Detection			~~[illegible]~~ 8
Zone 50 Elev 439	Detection			~~[illegible]~~ 8
Zone 51 Elev 439	Detection			~~[illegible]~~ 9
Zone 52 Elev 439	Detection			~~[illegible]~~ 11
Zone 53 Elev 439	Detection			~~4~~ 11
Zone 54 Elev 439	Detection			~~[illegible]~~
Zone 55 Elev 439	Detection			5
Zone 56 Elev 439	Detection			5
5. Remote Shutdown Panel				
Zone 13 Elev 383 (unit 1)	Detection			7

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TABLE 3.3-11b (Continued)

FIRE DETECTION INSTRUMENTS
(UNIT 2)

INSTRUMENT LOCATION	INSTRUMENT TYPE*	TOTAL NUMBER OF INSTRUMENTS Heat	Flame	Smoke
6. Station Battery Room				
Zone 37 Elev 451	Detection			~~18~~ 6
7. Diesel Generator Room				
Zone 37 Elev 401	Suppression	~~8~~ 4		
Zone 38 Elev 401	Suppression	~~8~~ 4		
Zone 71 Elev 401	Detection		1	
Zone 72 Elev 401	Detection		1	
8. Diesel Fuel Storage				
Zone 39 Elev 401	Suppression	1		
Zone 40 Elev 401	Suppression	1		
Zone 27 Elev 383	Suppression	3		
Zone 28 Elev 383	Suppression	3		
Zone 10 Elev 383	Detection			6
9. Safety Related Pumps				
Zone 41 Elev 383	Suppression	2		
Zone 42 Elev 383	Suppression	1		
Zone 16 Elev 364	Detection			2
Zone 18 Elev 364	Detection			~~1~~ 3
Zone 19 Elev 364	Detection			~~1~~ 2
Zone 20 Elev 346	Detection			3
Zone 21 Elev 346	Detection			3
Zone 52 RSH (unit 1)	Suppression	8		
Zone 11 Elev 360	Detection			23
10. Fuel Storage				
Zone 39 Elev 401 (unit 1)	Detection			29
Zone 38 Elev 426 (unit 1)	Detection		3	

→ add next page

TABLE NOTATIONS

*A single detector in a zone marked "Detection" will alarm in the Main Control Room. A single detector in a zone marked "Suppression" will initiate suppression and alarm in the Main Control Room.

**These are Containment Ventilation temperature switches. Upon receipt of a High temperature, suppression must be manually initiated. These switches are not 720 supervised.

***The fire detection instruments located within the containment are not required to be OPERABLE during the performance of Type A containment leakage rate tests.

add to page 3/4 3-59C U-2

INSTRUMENT TYPE*

11. Auxiliary Building		Heat	Flame	Smoke
~~ZONE 18 ELEV 364~~	~~DETECTION~~			~~3~~
ZONE 17 ELEV 346	DETECTION			32
ZONE 40 ELEV 346	DETECTION			12
[redacted]				
ZONE 22 ELEV 467	DETECTION			18
ZONE 62 ELEV 451	DETECTION			11
ZONE 14 ELEV 401	DETECTION			41
ZONE 15 ELEV 401	DETECTION			4
ZONE 64 ELEV 401	DETECTION			3
ZONE 65 ELEV 401	DETECTION			3
ZONE 61 ELEV 439	DETECTION			7
ZONE 70 ELEV 451	DETECTION			11
ZONE 75 ELEV 426	DETECTION			33
ZONE 25 ELEV 467	DETECTION			7
ZONE 17 ELEV 364	DETECTION (Unit 1)			37
ZONE 40 ELEV 364	DETECTION (Unit 1)			7
ZONE 11 ELEV 383	DETECTION (Unit 1)			37
ZONE 8 ELEV 401	DETECTION (Unit 1)			36
ZONE 23 ELEV 426	DETECTION (Unit 1)			6
[redacted]				
ZONE 12 ELEV 459	DETECTION			11

12. Miscellaneous

Zone 26 Elev. 864 (Unit 1)	Detection			12

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TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release		
Liquid Radwaste Effluent Line (ORE-PR001)	1	31
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release		
a. Essential Service Water ~~RCFC 1A and 1D~~ Outlet (1RE-PR002)	1	32
~~b. Essential Service Water RCFC 1B and 1D Outlet (1RE-PR003)~~	1	32
b. ~~c.~~ Station Blowdown Line (ORE-PR010)	1	32
3. Flow Rate Measurement Devices		
a. Liquid Radwaste Effluent Line (Loop-WX001)	1	33
b. Station Blowdown Line (Loop-CW032)	1	33
1) Unit 1		
a) RCFC 1A and 1C outlet (1RE-PR002)	1	32
b) RCFC 1B and 1D outlet (1RE-PR003)	1	32
2) Unit 2		
a) RCFC 2A and 2C outlet (2RE-PR002)	1	32
b) RCFC 2B and 2D outlet (2RE-PR003)	1	32

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TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	DIGITAL CHANNEL OPERATIONAL TEST	ANALOG CHANNEL OPERATIONAL TEST
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release					
Liquid Radwaste Effluent Line (0RE-PR001)	D	P	R(3)	Q(1)	N.A.
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release					
a. Essential Service Water ~~RCFC 1A and 1C~~ ~~Outlet Line (1RE-PR002)~~	~~D~~	~~M~~	~~R(3)~~	~~Q(2)~~	~~N.A.~~
~~b. Essential Service Water RCFC 1B and 1D Outlet (1RE-PR003)~~	~~D~~	~~M~~	~~R(3)~~	~~Q(2)~~	~~N.A.~~
b ~~c~~. Station Blowdown Line (0RE-PR010)	D	M	R(3)	Q(2)	N.A.
3. Flow Rate Measurement Devices					
a. Liquid Radwaste Effluent Line (loop-WX001)	D(4)	N.A.	R	N.A.	Q
b. Station Blowdown Line (loop-CW032)	D(4)	N.A.	R	N.A.	Q

Handwritten insert (to Outlet Line):

1) Unit 1					
a) RCFC 1A and 1C outlet (1RE-PR002)	D	M	R(3)	(Q2)	N.A.
b) RCFC 1B and 1D outlet (1RE-PR003)	D	M	R(3)	(Q2)	N.A.
2) Unit 2					
a) RCFC 2A and 2C outlet (2RE-PR002)	D	M	R(3)	(Q2)	N.A.
b) RCFC 2B and 2D outlet (2RE-PR003)	D	M	R(3)	(Q2)	N.A.

TABLE 3.3-13

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. Plant Vent Monitoring System - Unit 1			
a. Noble Gas Activity Monitor-Providing Alarm			
1) High Range (1RE-PR028D)	1	*	39
2) Low Range (1RE-PR028B)	1	*	39
b. Iodine Sampler (1RE-PR028C)	1	*	40
c. Particulate Sampler (1RE-PR028A)	1	*	40
d. Effluent System Flow Rate Measuring Device (LOOP-VA019)	1	*	36
e. Sampler Flow Rate Measuring Device (1FT-PR165)	1	*	36
2. Plant Vent Monitoring System - Unit 2			
a. Noble Gas Activity Monitor-Providing Alarm			
1) High Range (2RE-PR028D)	1	*	39
2) Low Range (2RE-PR028B)	1	*	39
b. Iodine Sampler (2RE-PR028C)	1	*	40
c. Particulate Sampler (2RE-PR028A)	1	*	40
d. Effluent System Flow Rate Measuring Device (LOOP-VA020)	1	*	36
e. Sampler Flow Rate Measuring Device (2FT-PR165)	1	*	36

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
3. Gaseous Waste Management System			
a. Hydrogen Analyzer (OAI-GW8000)	1	**	38
b. Oxygen Analyzer (~~OAI~~ OAIT-GW004 and OAI GW8003)	2	**	41
4. Gas Decay Tank System			
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (ORE-PR002A and 2B)	2	*	35
5. Containment Purge System			
a. Noble Gas Activity Monitor - Providing Alarm (1RE-PR001B)	1	*	37
b. Iodine Sampler (1RE-PR001C)	1	*	40
c. Particulate Sampler (1RE-PR001A)	1	*	40
6. Radioactivity Monitors Providing Alarm and Automatic Closure of Surge Tank Vent-Component Cooling Water Line (ORE-PR009 and 1RE-PR009)	2	*	42

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TABLE 3.3-13 (Continued)

TABLE NOTATIONS

* At all times.

** During WASTE GAS HOLDUP SYSTEM operation.

* # All instruments required for Unit 1 or Unit 2 operation.

ACTION STATEMENTS

ACTION 35 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment for up to 14 days provided that prior to initiating the release:

a. At least two independent samples of the tank's contents are analyzed, and

b. At least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve lineup.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 36 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours.

ACTION 37 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, immediately suspend PURGING of radioactive effluents via this pathway.

ACTION 38 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the Gaseous Waste Management System may continue for up to 14 days provided grab samples are taken and analyzed at least once per 8 hours (once per 4 hours during degassing operations).

ACTION 39 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

TABLE 4.3-9

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	DIGITAL CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Plant Vent Monitoring System - Unit 1					
a. Noble Gas Activity Monitor - Providing Alarm					
1) High Range (1RE-PR028D)	D	M	R(3)	Q(2)	*
2) Low Range (1RE-PR028B)	D	M	R(3)	Q(2)	*
b. Iodine Sampler (1RE-PR028C)	D	M	R(3)	Q(2)	*
c. Particulate Sampler (1RE-PR028A)	D	M	R(3)	Q(2)	*
d. Effluent System Flow Rate Measuring Device (1OOP-VA019)	D	N.A.	R	Q	*
e. Sampler Flow Rate Measuring Device (1FT-PR165)	D	N.A.	R	Q	*
2. Plant Vent Monitoring System - Unit Two					
a. Noble Gas Activity Monitor-Providing Alarm					
1) High Range (2RE-PR028D)	D	M	R(3)	Q(2)	*
2) Low Range (2RE-PR028B)	D	M	R(3)	Q(2)	*
b. Iodine Sampler (2RE-PR028C)	D	M	R(3)	Q(2)	*
c. Particulate Sampler (2RE-PR028A)	D	M	R(3)	Q(2)	*

TABLE 4.3-9 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	DIGITAL CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
2. Plant Vent Monitoring System - Unit Two (continued)					
d. Effluent System Flow Rate Measuring Device (1OOP-VA020)	D	N.A.	R	Q	*
e. Sampler Flow Rate Measuring Device (2II-PR165)	D	N.A.	R	Q	*
3. Gaseous Waste Management System					
a. Hydrogen Analyzer (OAI-GW8000)	D	N.A.	Q(4)	M	**
72 b. Oxygen Analyzer (~~OAI~~ OAIT-GW004 and OAI-GW8001)	D	N.A.	Q(5)	M	**
4. Gas Decay Tank System					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (ORL-PR002A and 2B)	P	P	R(3)	Q(1)	*
5. Containment Purge System					
a. Noble Gas Activity Monitor - Providing Alarm (ORL-PR001B)	D	P	R(3)	Q(2)	*
b. Iodine Sampler (ORL-PR001C)	P	P	R(3)	N.A.	*
c. Particulate Sampler (ORL-PR001A)	P	P	R(3)	N.A.	*

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REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 At least two of the reactor coolant loops listed below shall be OPERABLE with two reactor coolant loops in operation when the Reactor Trip System breakers are closed and one reactor coolant loop in operation when the Reactor Trip System breakers are open:*

a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,

b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,

c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump, and

d. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump.

APPLICABILITY: MODE 3.**

ACTION:

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

b. With only one reactor coolant loop in operation and the Reactor Trip System breakers in the closed position, within 1 hour open the Reactor Trip System breakers.

c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side narrow range water level to be greater than or equal to 41% at least once per 12 hours.

X

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

for Unit 1 (18% for Unit 2)

*All Reactor Coolant pumps may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**See Special Test Exception Specification 3.10.4.

TABLE 4.3-9 (Continued)

X RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS #

FUNCTIONAL UNIT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	DIGITAL CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
6. Radioactivity Monitors Providing Alarm and Automatic Closure of Surge Tank Vent Component Cooling Water Line (ORE-PR009 and 1RE-PR009)	D	M	R(3)	Q(1)	*

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TABLE 4.3-9 (Continued)

TABLE NOTATIONS

* At all times.

** During WASTE GAS HOLDUP SYSTEM operation.

All instruments required for Unit 1 or Unit 2 operation.

(1) The DIGITAL CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exists:

a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or

b. Circuit failure (monitor loss of communications - alarm only, detector loss of counts, or monitor loss of power), or

c. Detector check source test failure, or

d. Detector channel out-of-service, or

e. Monitor loss of sample flow.

(2) The DIGITAL CHANNEL OPERATIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

a. Instrument indicates measured levels above the Alarm Setpoint, or

b. Circuit failure (monitor loss of communications - alarm only, detector loss of counts, or monitor loss of power), or

c. Detector check source test failure, or

d. Detector channel out-of-service, or

e. Monitor loss of sample flow.

(3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.

(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing hydrogen and nitrogen.

(5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing oxygen and nitrogen.

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REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required reactor coolant pump(s) and/or RHR pumps, if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side narrow range water level to be greater than or equal to 41% at least once per 12 hours.

* for Unit 1 (13% for Unit 2)

4.4.1.3.3 At least one reactor coolant or RHR loop shall be verified in operation and circulating reactor coolant at least once per 12 hours.

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REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS FILLED

LIMITING CONDITION FOR OPERATION

3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation*, and either:

a. One additional RHR loop shall be OPERABLE#, or

b. The secondary side narrow range water level of at least two steam generators shall be greater than 41% for Unit 1 (18% for Unit 2).

APPLICABILITY: MODE 5 with reactor coolant loops filled##.

ACTION:

a. With one of the RHR loops inoperable and with less than the required steam generator level, immediately initiate corrective action to return the inoperable RHR loop to OPERABLE status or restore the required steam generator level as soon as possible.

b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

---

*The RHR pump may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

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

##A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 350°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

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TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

VALVE NUMBER	FUNCTION
1SI8900A,B,C,D	CHG/SI Check Valve
1SI8815	CHG/SI Backup Check Valve
1SI8948A,B,C,D	Accumulator Check Valve
1SI8956A,B,C,D	Accumulator Backup Check Valve
1SI8818A,B,C,D	RHR Cold Leg Check Valve
1SI8819A,B,C,D	SI Cold Leg Check Valve
1SI8949A,B,C,D	SI Hot Leg Check Valve
1SI8905A,B,C,D	SI Hot Leg Backup Check Valve
1SI8841A,B	RHR Hot Leg Check Valve
*1RH8701A,B	RHR Suction MOV's
*1RH8702A,B	RHR Suction MOV's

*NOTE

1. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater, and

2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater, and

3. Leakage rates greater than 5.0 gpm are considered unacceptable.

REACTOR COOLANT SYSTEM

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2a and 3.4-3a for Unit 1 (Figures 3.4-2b and 3.4-3b for Unit 2) during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

a. A maximum heatup of 100°F in any 1-hour period,

b. A maximum cooldown of 100°F in any 1-hour period, and

c. A maximum temperature change of less than or equal to 10°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR Part 50, Appendix H, in accordance with the schedule in Table 4.4-5. The results of these examinations shall be used to update Figures 3.4-2, 3.4-3, and 3.4-4.

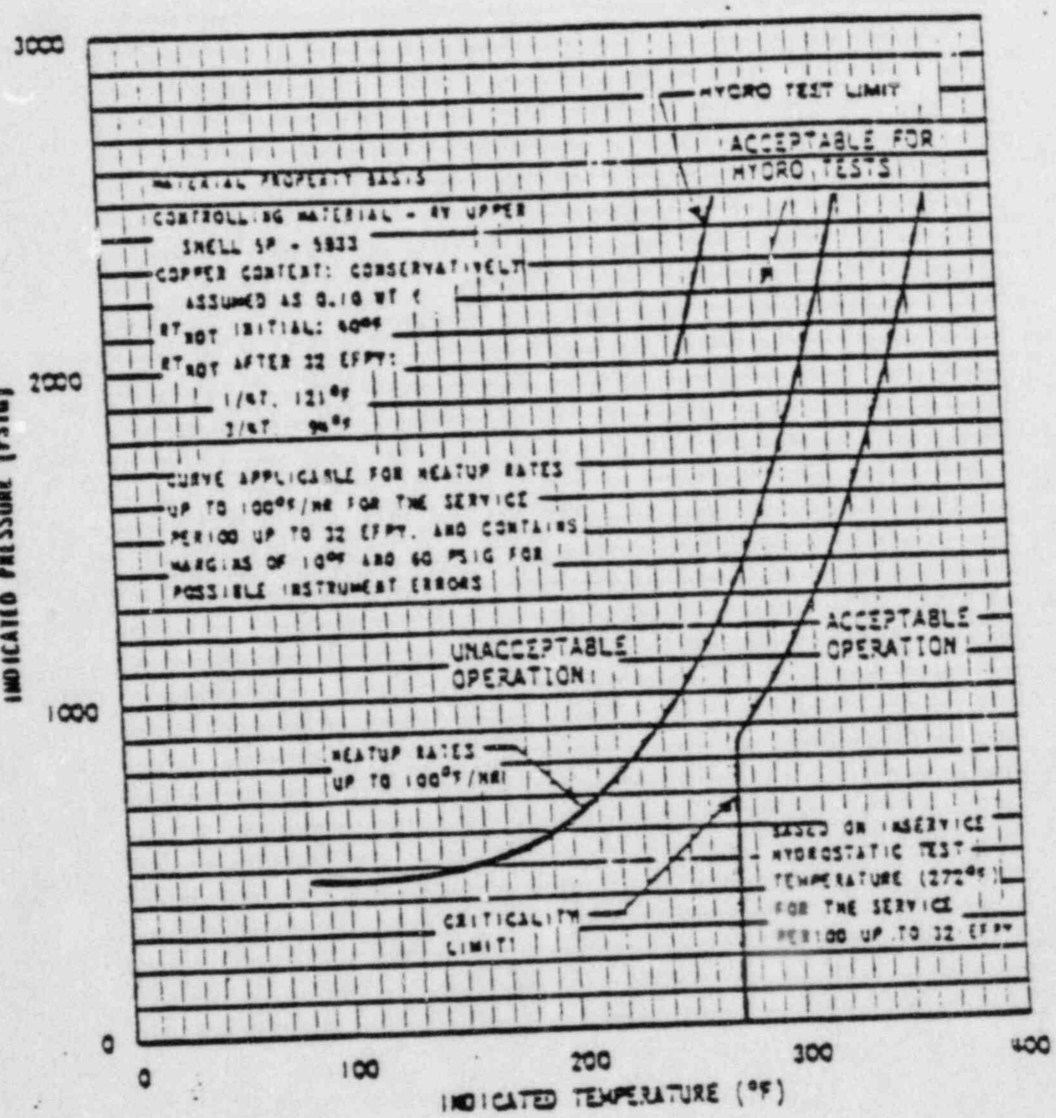

FIGURE 3.4-2a

[redacted]

REACTOR COOLANT SYSTEM HEATUP LIMITATIONS
APPLICABLE UP TO 32 EFPY (Unit 1)

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MATERIAL PROPERTY BASIS

LIMITING MATERIAL : WELD METAL
COPPER CONTENT : ASSUMED TO BE 0.05 WT% (ACTUAL CONTENT = 0.06 WT%)

RT_{NDT} INITIAL : CONSERVATIVELY ASSUMED TO BE 40°F (ACTUAL RT_{NDT} = 10°F)
RT_{NDT} AFTER 16 EFPY : 1/4T, 110°F (ACTUAL RT_{NDT} = 85°F)
3/4T, 87°F (ACTUAL RT_{NDT} = 60°F)

CURVE APPLICABLE FOR HEATUP RATES UP TO 60°F/HR FOR THE SERVICE PERIOD UP TO 16 EFPY AND CONTAINS MARGINS OF 10°F AND 60 PSIG FOR POSSIBLE INSTRUMENT ERRORS

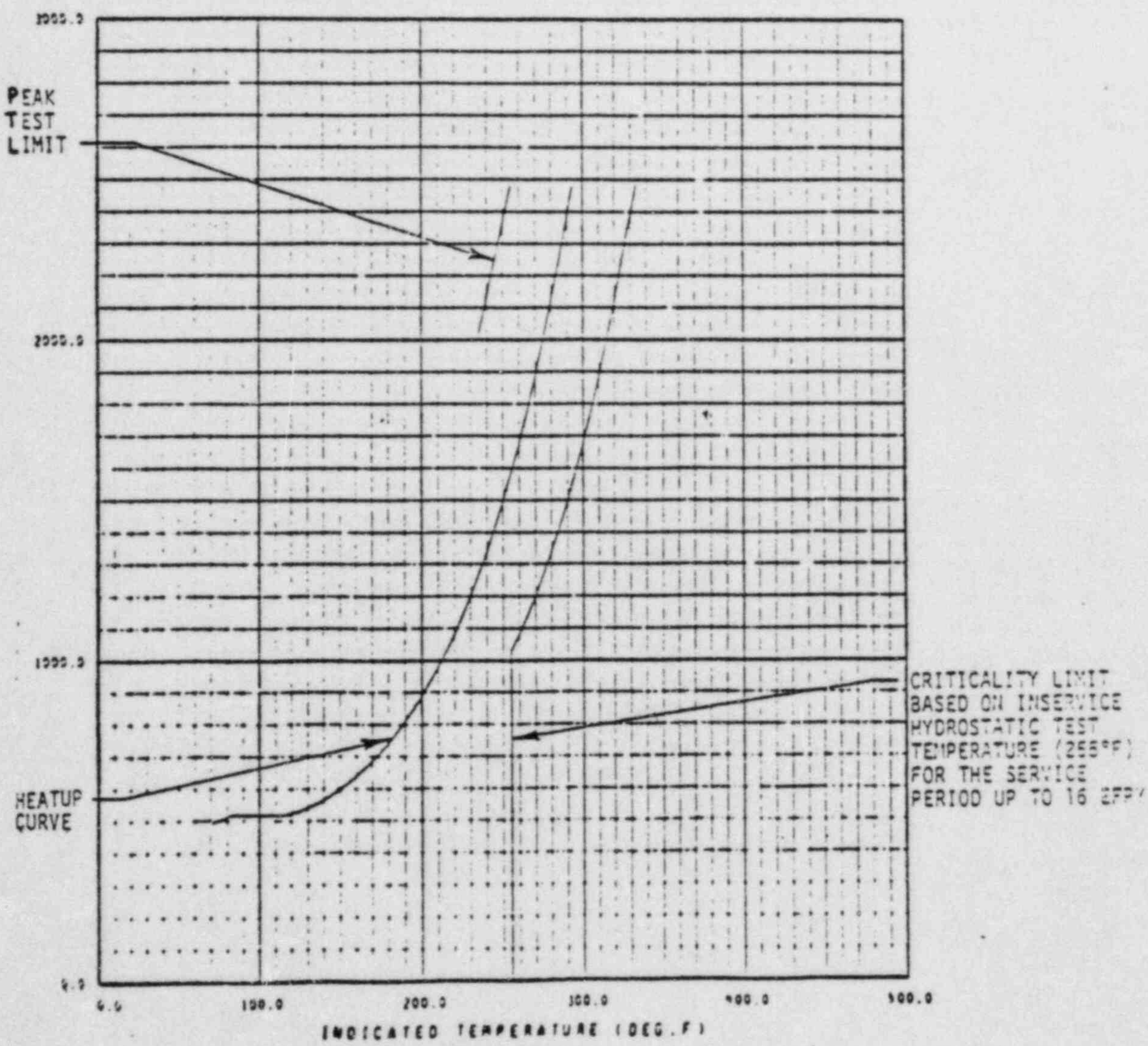

Figure 3.4-2b
[redacted]
Reactor Coolant System Heatup Limitations applicable up to 16 EFPY (Unit 2)

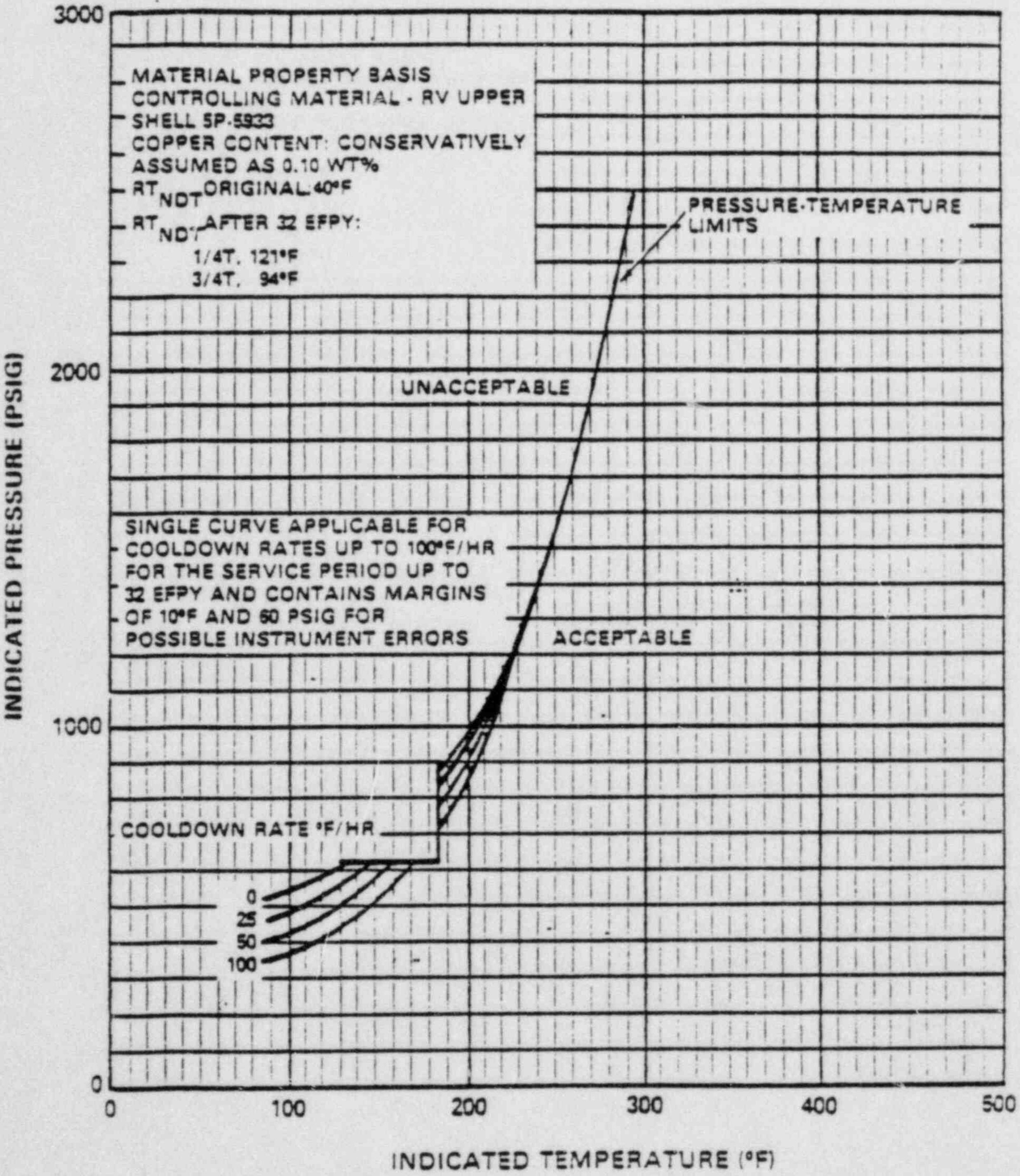

Figure 3.4-3 Reactor Coolant System Cooldown Limitations Applicable up to 32 EFPY (Unit 1)

MATERIAL PROPERTY BASIS

LIMITING MATERIAL : WELD METAL

COPPER CONTENT : ASSUMED TO BE 0.05 WT% (ACTUAL CONTENT = 0.06 WT%)

RT_{NDT} INITIAL : CONSERVATIVELY ASSUMED TO BE 40°F (ACTUAL RT_{NDT} = 10

RT_{NDT} AFTER 16 EFPY : 1/4T, 110°F (ACTUAL RT_{NDT} = 85°F)
3/4T, 87°F (ACTUAL RT_{NDT} = 60°F)

CURVE APPLICABLE FOR COOLDOWN RATES UP TO 100°F/HR FOR THE SERVICE PERIOD UP TO 16 EFPY AND CONTAINS MARGINS OF 10°F AND 60 PSIG FOR POSSIBLE INSTRUMENT ERRORS

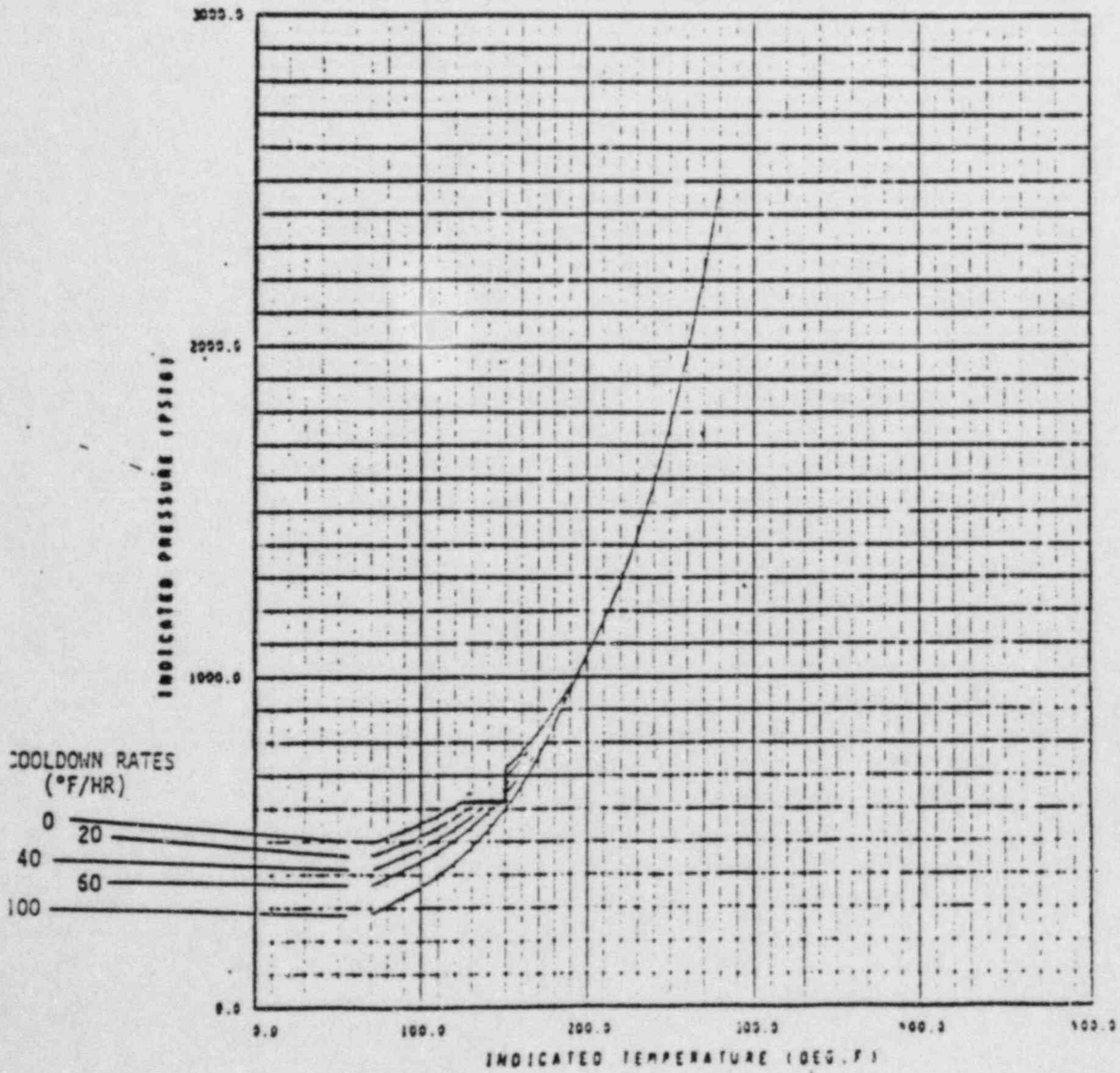

Figure 3.4-3b Reactor Coolant System Cooldown Limitations Applicable up to 16 EFPY (Unit 2)

TABLE 4.4-5

REACTOR VESSEL MATERIAL SURVEILLANCE PROGRAM - WITHDRAWAL SCHEDULE

UNIT 1

CAPSULE NUMBER	VESSEL LOCATION	LEAD FACTOR	WITHDRAWAL TIME (EFPY)*
U	58.5°	4.05	1st Refueling
X	238.5°	4.05	6
V	61°	3.37	10
Y	241°	3.37	15
W	121.5°	4.05	Standby
Z	301.5°	4.05	Standby

UNIT 2

CAPSULE NUMBER	VESSEL LOCATION	LEAD FACTOR	WITHDRAWAL TIME (EFPY)*
U	58.5°	4.00	1st Refueling
W	121.5°	4.00	4.5
X	238.5	4.00	8.0
V	61°	3.69	15.0
Y	241°	3.69	Standby
Z	301.5°	4.00	Standby

*Withdrawal time may be modified to coincide with those refueling outages or reactor shutdowns most closely approaching the withdrawal schedule.

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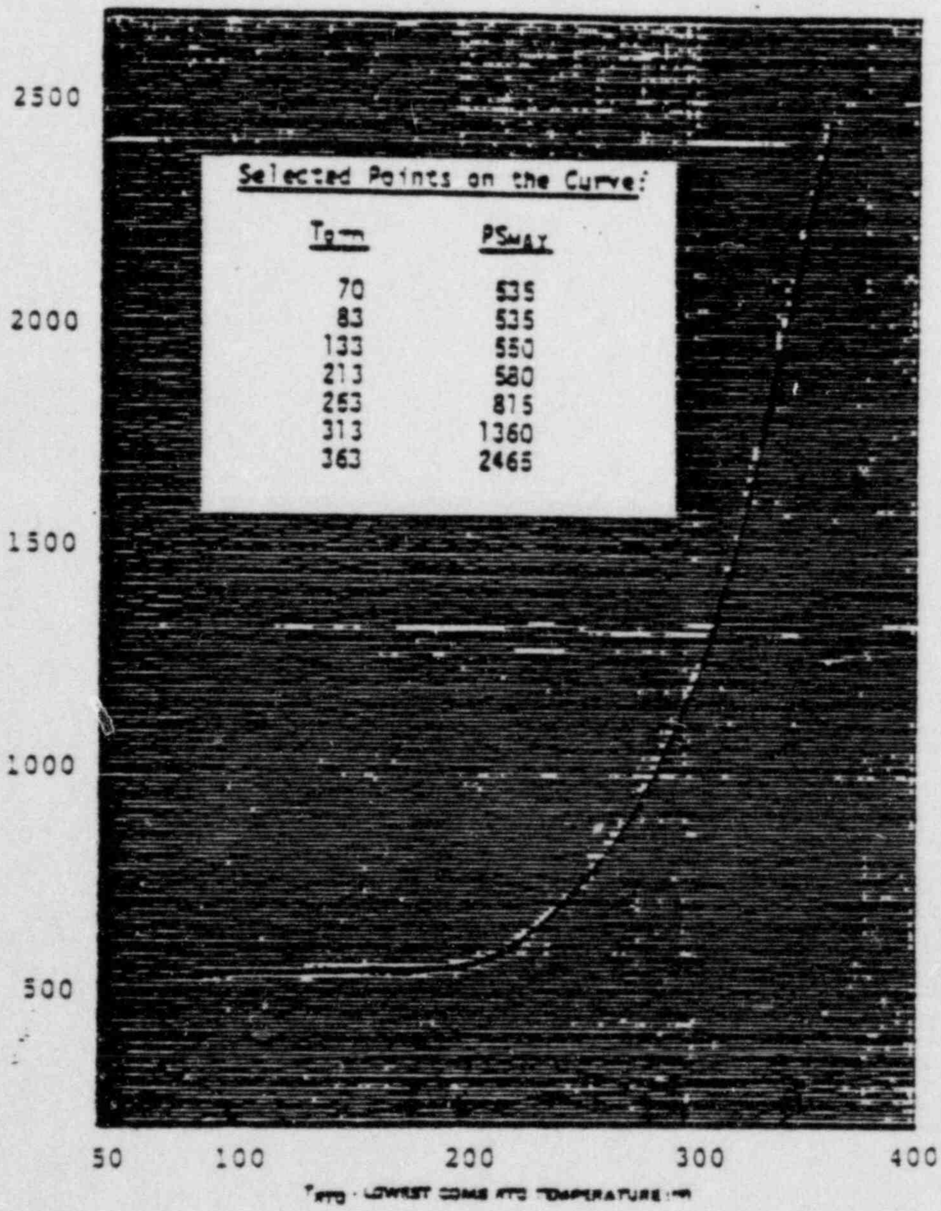

FIGURE 3.4-4

NOMINAL PORV PRESSURE RELIEF SETPOINT VERSUS
RCS TEMPERATURE FOR THE COLD OVERPRESSURE PROTECTION SYSTEM

Applicable up to 10 EFPY

4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

a. Performance of an ANALOG CHANNEL OPERATIONAL TEST on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days thereafter when the PORV is required OPERABLE;

b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel at least once per 18 months; and

c. Verifying the PORV isolation valve is open at least once per 72 hours when the PORV is being used for overpressure protection.

4.4.9.3.2 Each RHR suction relief valve shall be demonstrated OPERABLE when the RHR suction relief valves are being used for cold overpressure protection as follows:

a. For RHR suction relief valve 8708B:

1) By verifying at least once per 31 days that RHR RCS Suction Isolation Valve 1RH8702A is open with power to the valve operator removed, and ×

2) By verifying at least once per 12 hours that 1RH8702B is open. ×

b. For RHR suction relief valve 8708A:

1) By verifying at least once per 31 days that 1RH8701B is open with power to the valve operator removed, and ×

2) By verifying at least once per 12 hours that 1RH8701A is open. ×

c. Testing pursuant to Specification 4.0.5.

4.4.9.3.3 The RCS vent(s) shall be verified to be open at least once per 12 hours* when the vent(s) is being used for overpressure protection.

*Except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open at least once per 31 days.

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SURVEILLANCE REQUIREMENTS (Continued)

g. By verifying the correct position of each mechanical position stop for the following ECCS throttle valves:

1) Within 4 hours following completion of each valve stroking operation or maintenance on the valve when the ECCS subsystems are required to be OPERABLE, and

2) At least once per 18 months.

High Head SI System Valve Number	SI System Valve Number
~~1~~ 2SI8810 A,B,C,D	~~1~~ 2SI8822 A,B,C,D ×
	~~1~~ 2SI8816 A,B,C,D ×

h. By performing a flow balance test, during shutdown, following completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics and verifying that:

1) For centrifugal charging pump lines, with a single pump running:

a) The sum of the injection line flow rates, excluding the highest flow rate, is greater than or equal to 330 gpm, and

b) The total pump flow rate is less than or equal to ~~535~~ 550 gpm, including a simulated seal injection flow of 80 gpm.

2) For Safety Injection pump lines, with a single pump running:

a) The sum of the injection line flow rates, excluding the highest flow rate, is greater than or equal to ~~480~~ 439 gpm, and

b) The total pump flow rate is less than or equal to ~~650~~ 655 gpm.

3) For RHR pump lines, with a single pump running, the sum of the injection line flow rates is greater than or equal to ~~3800~~ 3804 gpm.

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1) Less than or equal to L_a, 0.10% by weight of the containment air per 24 hours at P_a, 44.4 psig, or

2) Less than or equal to L_t, C 07% by weight of the containment air per 24 hours at P_t, 22.2 psig. for unit 1 (___% by weight of the containment air per 24 hours for unit 2)

b. A combined leakage rate of less than 0.60 L_a for all penetrations and valves subject to Type B and C tests, when pressurized to P_a.

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

ACTION:

With either the measured overall integrated containment leakage rate exceeding 0.75 L_a or 0.75 L_t, as applicable, or the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, restore the overall integrated leakage rate to less than 0.75 L_a or less than 0.75 L_t, as applicable, and the combined leakage rate for all penetrations subject to Type B and C tests to less than 0.60 L_a prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI N45.4-1972:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10 month intervals during shutdown at a pressure not less than P_a, 44.4 psig, or P_t, 22.2 psig, during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection;

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CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall not exceed 120°F.

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

ACTION:

With the containment average air temperature greater than 120°F, reduce the average air temperature to within the limit within 8 hours, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 The primary containment average air temperature shall be the arithmetical average of the temperatures of the running fans at the following locations and shall be determined at least once per 24 hours:

Location

1A. RCFC Dry Bulb Inlet Temperature

1B. RCFC Dry Bulb Inlet Temperature

1C. RCFC Dry Bulb Inlet Temperature

1D. RCFC Dry Bulb Inlet Temperature.

TABLE 3.6-1

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
1. Phase "A" Isolation			
28	1CV8100	RCP Seal Water Return	10
28	1CV8112	RCP Seal Water Return	10
41	1CV8152	RCS Letdown	10
41	1CV8160	RCS Letdown	10
5	1WØ020A	Chilled Water	50
5	1WØ056A	Chilled Water	50
6	1WØ006A	Chilled Water	50
8	1WØ020B	Chilled Water	50
8	1WØ056B	Chilled Water	50
10	1WØ006B	Chilled Water	50
22	1CC9437B*	Excess Ltdn HX Return	10
48	1CC9437A*	Excess Ltdn HX Supply	10
34	1FP010*	Fire Protection	12
39	1IA065	Instrument Air	15
39	1IA066	Instrument Air	15
13	1ØG079	Hydrogen Recombiner	60
13	1ØG080	Hydrogen Recombiner	60
13	1ØG082	Hydrogen Recombiner	60
13	1ØG084	Hydrogen Recombiner	60
23	1ØG081	Hydrogen Recombiner	60
23	1ØG085	Hydrogen Recombiner	60
69	1ØG057A	Hydrogen Recombiner	60
69	1ØG083	Hydrogen Recombiner	60
56	1SA032	Service Air	4.5
56	1SA033	Service Air	4.5
80	1SD002C	Steam Generator Blowdown	7.5
80	1SD005B	Steam Generator Blowdown	3.0
81	1SD002D	Steam Generator Blowdown	7.5
82	1SD002A	Steam Generator Blowdown	7.5
82	1SD005A	Steam Generator Blowdown	3.0
83	1SD002B	Steam Generator Blowdown	7.5
88	1SD002E	Steam Generator Blowdown	7.5
88	1SD005C	Steam Generator Blowdown	3.0
89	1SD002F	Steam Generator Blowdown	7.5
90	1SD002G	Steam Generator Blowdown	7.5
90	1SD005D	Steam Generator Blowdown	3.0
91	1SD002H	Steam Generator Blowdown	7.5

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
1. Phase "A" Isolation (Continued)			
52	1PR001A	Process Radiation	4.5
52	1PR001B	Process Radiation	4.5
52	1PR066	Process Radiation	5.0
12	1PS228A	Hydrogen Monitor	N.A. ~~N/A~~**
12	1PS229A	Hydrogen Monitor	N.A. ~~N/A~~**
12	1PS230A	Hydrogen Monitor	N.A. ~~N/A~~**
31 ~~12~~	1PS228B	Hydrogen Monitor	N.A. ~~N/A~~**
31 ~~12~~	1PS229B	Hydrogen Monitor	N.A. ~~N/A~~**
31 ~~12~~	1PS230B	Hydrogen Monitor	N.A. ~~N/A~~**
70	1PS9354A	Primary Process Sampling	10
70	1PS9354B	Primary Process Sampling	10
70	1PS9355A	Primary Process Sampling	10
70	1PS9355B	Primary Process Sampling	10
70	1PS9356A	Primary Process Sampling	10
70	1PS9356B	Primary Process Sampling	10
70	1PS9357A	Primary Process Sampling	10
70	1PS9357B	Primary Process Sampling	10
11	1RE9170	Reactor Bldg Equip Drains	10
11	1RE1003	Reactor Bldg Equip Drains	10
65	1RE9157	Reactor Bldg Equip Drains	10
65	1RE9159A	Reactor Bldg Equip Drains	10
65	1RE9159B	Reactor Bldg Equip Drains	10
65	1RE9160A	Reactor Bldg Equip Drains	10
65	1RE9160B	Reactor Bldg Equip Drains	10
27	1RY8025	PRT Nitrogen	10
27	1RY8026	PRT Nitrogen	10
27	1RY8033	PRT Nitrogen	10
44	1RY8028	PRT Make-up	10
55	1SI8964	Accumulator Fill	10
55	1SI8880	Nitrogen Supply to Accumulator	10
55	1SI8871	Accumulator Fill	10
55	1SI8888	Hot Leg Safety Injection	10
47	1RF026	Reactor Building Floor Drains	15
47	1RF027	Reactor Building Floor Drains	15

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
2. Phase "B" Isolation			
21	1CC9414	RCP Mtr Brng Return	10
21	1CC9416	RCP Mtr Brng Return	10
24	1CC685	RCP Thermal Barrier Return	10
24	1CC9438	RCP Thermal Barrier Return	10
25	1CC9413A	RCP Cooling Wtr Supply	10
3. Safety Injection			
71	1CV8105*	CVCS Charging	10
71	1CV8106*	CVCS Charging	10
7	1SX016B*	Essential Service Water	~~N/A~~ N.A.
9	1SX027B*	Essential Service Water	~~N/A~~ N.A.
14	1SX027A*	Essential Service Water	~~N/A~~ N.A.
15	1SX016A*	Essential Service Water	~~N/A~~ N.A.
26	1SI8801A*	Cold Leg Safety Injection	~~N/A~~ N.A.
26	1SI8801B*	Cold Leg Safety Injection	~~N/A~~ N.A.
92	1SI8811A*	Containment Recirc. Sump	~~N/A~~ N.A.
93	1SI8811B*	Containment Recirc. Sump	~~N/A~~ N.A.
4. Containment Ventilation Isolation			
94	1VQ003	Mini-Flow Purge Exhaust	5
94	1VQ005A	Mini-Flow Purge Exhaust	5
94	1VQ005B	Mini-Flow Purge Exhaust	5
94	1VQ005C	Mini-Flow Purge Exhaust	5
95	1VQ002A	Purge Exhaust	5
95	1VQ002B	Purge Exhaust	5
96	1VQ004A	Mini-Flow Purge Supply	5
96	1VQ004B	Mini-Flow Purge Supply	5
97	1VQ001A	Purge Supply	5
97	1VQ001B	Purge Supply	5
5. Containment Spray Actuation			
1	1CS007A	Containment Spray	30
16	1CS007B	Containment Spray	30
6. Main Steam Isolation			
77	1MS101D*	Main Steam	~~10~~ 6
78	1MS101A*	Main Steam	~~10~~ 6

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
6. Main Steam Isolation (Continued)			
85	1MS101B*	Main Steam	~~10.0~~ 6
86	1MS101C*	Main Steam	~~10.0~~ 6
7. Feedwater Isolation			
76	1FW009D*	Main Feedwater	5.0
76	1FW043D*	Main Feedwater	6.0
79	1FW009A*	Main Feedwater	5.0
79	1FW043A*	Main Feedwater	6.0
84	1FW009B*	Main Feedwater	5.0
84	1FW043B*	Main Feedwater	6.0
87	1FW009C*	Main Feedwater	5.0
87	1FW043C*	Main Feedwater	6.0
99	1FW035D*	Main Feedwater	6.0
99	1FW039D*	Main Feedwater	6.0
100	1FW035A*	Main Feedwater	6.0
100	1FW039A*	Main Feedwater	6.0
101	1FW035B*	Main Feedwater	6.0
101	1FW039B*	Main Feedwater	6.0
102	1FW035C*	Main Feedwater	6.0
102	1FW039C*	Main Feedwater	6.0
8. Remote Manual			
68	1RH8701A*	RH Suction	~~N/A~~ N.A.
68	1RH8701B*	RH Suction	~~N/A~~ N.A.
75	1RH8702A*	RH Suction	~~N/A~~ N.A.
75	1RH8702B*	RH Suction	~~N/A~~ N.A.
59	1SI8881*	Hot Leg Safety Injection	~~N/A~~ N.A.
73	1SI8824*	Hot Leg Safety Injection	~~N/A~~ N.A.
66	1SI8825*	Hot Leg RH Injection	~~N/A~~ N.A.
60	1SI8823*	Cold Leg Safety Injection	~~N/A~~ N.A.
50	1SI8890A*	Cold Leg RH Injection	~~N/A~~ N.A.
51	1SI8890B*	Cold Leg RH Injection	~~N/A~~ N.A.
26	1SI8843*	Cold Leg Safety Injection	~~N/A~~ N.A.
33	1CV8355A*	RCP Seal Injection	~~N/A~~ N.A.
33	1CV8355D*	RCP Seal Injection	~~N/A~~ N.A.
53	1CV8355B*	RCP Seal Injection	~~N/A~~ N.A.
53	1CV8355C*	RCP Seal Injection	~~N/A~~ N.A.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
8. Remote Manual (Continued)			
59	1SI8802A*	Hot Leg Safety Injection	~~N/A~~ N.A.
73	1SI8802B*	Hot Leg Safety Injection	~~N/A~~ N.A.
60	1SI8835*	Hot Leg Safety Injection	~~N/A~~ N.A.
50	1SI8809A*	RH Cold Leg Injection	~~N/A~~ N.A.
51	1SI8809B*	RH Cold Leg Injection	~~N/A~~ N.A.
66	1SI8840*	Hot Leg Safety Injection	~~N/A~~ N.A.
100	1AF013A*	Feedwater	~~N/A~~ N.A.
100	1AF013E*	Feedwater	~~N/A~~ N.A.
101	1AF013B*	Feedwater	~~N/A~~ N.A.
101	1AF013F*	Feedwater	~~N/A~~ N.A.
102	1AF013C*	Feedwater	~~N/A~~ N.A.
102	1AF013G*	Feedwater	~~N/A~~ N.A.
99	1AF013D*	Feedwater	~~N/A~~ N.A.
99	1AF013H*	Feedwater	~~N/A~~ N.A.
9. Manual			
37	1CV8346*	RCS Loop Fill	~~N/A~~ N.A.
I3	1VQ016	Instrument Penetration	~~N/A~~ N.A.
I3	1VQ017	Instrument Penetration	~~N/A~~ N.A.
I3	1VQ018	Instrument Penetration	~~N/A~~ N.A.
I3	1VQ019	Instrument Penetration	~~N/A~~ N.A.
I5	1RY075	Instrument Penetration	~~N/A~~ N.A.
30	1WM190	Make-Up Demin	~~N/A~~ N.A.
57	1FC009	Spent Fuel Pool Cleaning	~~N/A~~ N.A.
57	1FC010	Spent Fuel Pool Cleaning	~~N/A~~ N.A.
32	1FC011	Spent Fuel Pool Cleaning	~~N/A~~ N.A.
32	1FC012	Spent Fuel Pool Cleaning	~~N/A~~ N.A.
77	1MS021D*	Main Steam	~~N/A~~ N.A.
78	1MS021A*	Main Steam	~~N/A~~ N.A.
85	1MS021B*	Main Steam	~~N/A~~ N.A.
86	1MS021C*	Main Steam	~~N/A~~ N.A.
AL	1PR002E	Process Radiation	~~N/A~~ N.A.
AL	1PR033A	Process Radiation	~~N/A~~ N.A.
AL	1PR033B	Process Radiation	~~N/A~~ N.A.
AL	1PR002F	Process Radiation	~~N/A~~ N.A.
AL	1PR033C	Process Radiation	~~N/A~~ N.A.
AL	1PR033D	Process Radiation	~~N/A~~ N.A.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
9. Manual (Continued)			
99	1FW015D*	Feedwater	~~N/A~~ N.A.
100	1FW015A*	Feedwater	~~N/A~~ N.A.
101	1FW015B*	Feedwater	~~N/A~~ N.A.
102	1FW015C*	Feedwater	~~N/A~~ N.A.
10. Check			
28	1CV8113	RCP Seal Water Return	~~N/A~~ N.A.
37	1CV8348*	RCS Loop Fill	~~N/A~~ N.A.
6	1WØ007A	Chilled Water	~~N/A~~ N.A.
10	1WØ007B	Chilled Water	~~N/A~~ N.A.
21	1CC9534	RCP Mtr Brng Return	~~N/A~~ N.A.
24	1CC9518	RCP Thermal Barrier Return	~~N/A~~ N.A.
25	1CC9486	RCP Cooling Wtr Supply	~~N/A~~ N.A.
1	1CS008A	Containment Spray	~~N/A~~ N.A.
16	1CS008B	Containment Spray	~~N/A~~ N.A.
39	1IA091	Instrument Air	~~N/A~~ N.A.
30	1WM191	Make-Up Demin	~~N/A~~ N.A.
52	1PR032	Process Radiation	~~N/A~~ N.A.
AL	1PR002G	Process Radiation	~~N/A~~ N.A.
AL	1PR002H	Process Radiation	~~N/A~~ N.A.
12	1PS231A	Hydrogen Monitor	~~N/A~~ N.A.
x ~~28~~ 31	1PS231B	Hydrogen Monitor	~~N/A~~ N.A.
27	1RY8047	PRT Nitrogen	~~N/A~~ N.A.
44	1RY8046	PRT Make-Up	~~N/A~~ N.A.
26	1SI8815*	Safety Injection	~~N/A~~ N.A.
50	1SI8818A*	Safety Injection	~~N/A~~ N.A.
50	1SI8818D*	Safety Injection	~~N/A~~ N.A.
51	1SI8818B*	Safety Injection	~~N/A~~ N.A.
51	1SI8818C*	Safety Injection	~~N/A~~ N.A.
59	1SI8905A*	Safety Injection	~~N/A~~ N.A.
59	1SI8805D*	Safety Injection	~~N/A~~ N.A.
60	1SI8819A*	Safety Injection	~~N/A~~ N.A.
60	1SI8819B*	Safety Injection	~~N/A~~ N.A.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION	VALVE NO.	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
10. Check (Continued)			
60	1SI8819C*	Safety Injection	~~N/A~~ N.A.
60	1SI8819D*	Safety Injection	~~N/A~~ N.A.
66	1SI8841A*	Safety Injection	~~N/A~~ N.A.
66	1SI8841B*	Safety Injection	~~N/A~~ N.A.
73	1SI8905B*	Safety Injection	~~N/A~~ N.A.
73	1SI8905C*	Safety Injection	~~N/A~~ N.A.
55	1SI8968*	Safety Injection	~~N/A~~ N.A.
34	1FP345*	Fire Protection	~~N/A~~ N.A.
33	1CV8368A*	RCP Seal Injection	~~N/A~~ N.A.
33	1CV8368D*	RCP Seal Injection	~~N/A~~ N.A.
53	1CV8368B*	RCP Seal Injection	~~N/A~~ N.A.
53	1CV8368C*	RCP Seal Injection	~~N/A~~ N.A.
11. S/G Safeties/PORVs			
77	1MS013D*	Main Steam	~~N/A~~ N.A.
77	1MS014D*	Main Steam	~~N/A~~ N.A.
77	1MS015D*	Main Steam	~~N/A~~ N.A.
77	1MS016D*	Main Steam	~~N/A~~ N.A.
77	1MS017D*	Main Steam	~~N/A~~ N.A.
78	1MS013A*	Main Steam	~~N/A~~ N.A.
78	1MS014A*	Main Steam	~~N/A~~ N.A.
78	1MS015A*	Main Steam	~~N/A~~ N.A.
78	1MS016A*	Main Steam	~~N/A~~ N.A.
78	1MS017A*	Main Steam	~~N/A~~ N.A.
85	1MS013B*	Main Steam	~~N/A~~ N.A.
85	1MS014B*	Main Steam	~~N/A~~ N.A.
85	1MS015B*	Main Steam	~~N/A~~ N.A.
85	1MS016B*	Main Steam	~~N/A~~ N.A.
85	1MS017B*	Main Steam	~~N/A~~ N.A.
86	1MS013C*	Main Steam	~~N/A~~ N.A.
86	1MS014C*	Main Steam	~~N/A~~ N.A.
86	1MS015C*	Main Steam	~~N/A~~ N.A.
86	1MS016C*	Main Steam	~~N/A~~ N.A.
86	1MS017C*	Main Steam	~~N/A~~ N.A.
77	1MS018D*	Main Steam	20
78	1MS018A*	Main Steam	20
85	1MS018B*	Main Steam	20
86	1MS018C*	Main Steam	20

*Not subject to Type C leakage tests.

**Proper valve operation will be demonstrated by verifying that the valve strokes to its required position.

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TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

VALVE NUMBER	LIFT SETTING (±1%)*	ORIFICE SIZE
1MS013(A-D)	1235 psig	16 in^2
1MS014(A-D)	1220 psig	16 in^2
1MS015(A-D)	1205 psig	16 in^2
1MS016(A-D)	1190 psig	16 in^2
1MS017(A-D)	1175 psig	16 in^2

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

SURVEILLANCE REQUIREMENTS (Continued)

2) Verifying by flow or position check that each valve (manual, power-operated, or automatic) valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position; and

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 the motor-driven pump and the direct-driven diesel pump start automatically upon receipt of each of the following test signals:

×

a) SI ~~ESF~~, or

b) Steam Generator Water Level Low-Low from one steam generator, or

c) Undervoltage on Reactor Coolant Pump 6.9 kV Buses (2/4), or

d) ESF Bus 141 for Unit 1 (Bus 241 for Unit 2) Undervoltage (motor-driven pump only).

×

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.

4.7.1.2.3 The auxiliary feedwater pump diesel shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying the fuel level in its day tank;

b. At least once per 92 days by verifying that a drain sample of diesel fuel from its day tank, obtained in accordance with ASTM-D4057-1981 is within the acceptable limits specified in Table 1 of ASTM-D975-1977 when checked for viscosity, water, and sediment; and

c. At least once per 18 months, during shutdown, by subjecting the diesel to an inspection in accordance with its manufacturer's recommendations for this class of service.

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3/4.7.3 COMPONENT COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

kV busses

3.7.3 The Component Cooling Water System shall be OPERABLE with:

a. Two safety loops serving the RH pumps and RH heat exchangers,

* b. Two component cooling water pumps powered from 4 ~~KV buses~~ 141 and 142 for Unit 1 (Busses 241 and 242 for unit 2) and

c. Two component cooling water heat exchangers.

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

ACTION:

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

b. With only one component cooling water pump OPERABLE, restore at least two pumps 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.

c. With only one heat exchanger OPERABLE, restore at least two heat exchangers to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.3.1 At least two component cooling water loops shall be demonstrated OPERABLE at least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

4.7.3.2 At least two component cooling water pumps shall be demonstrated OPERABLE by performing the following:

* a. The component cooling water pumps shall be operated each month. Performance will be acceptable if the pump starts upon actuation, operates for at least 4 hours, and satisfies the cooling requirements for the routine operation of the component cooling water system, and

* b. By verifying at least once per 18 months during shutdown that each component cooling water pump starts automatically on a SI test signal. This will include a test of the common component cooling water pump while powered from 4 ~~KV buses~~ kV Busses 141 and 142 for Unit 1 (Busses 241 and 242 for unit 2).

4.7.3.3 At least two component cooling water heat exchangers shall be verified OPERABLE at least once per 31 days by:

* a. Verifying that each component cooling water heat exchanger inlet and outlet valve is OPERABLE, and

b. Verifying the Essential Service Water is available to each component cooling water heat exchanger.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4 At least two independent Essential Service Water Systems, each of which includes a loop and a cooling tower, shall be OPERABLE.

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

ACTION:

a. With only one Essential Service Water System OPERABLE, restore at least two Essential Service Water Systems to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4 At least two Essential Service Water Systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position is in its correct position~~; and~~

x b. At least once per 18 months during shutdown, by verifying that:

1) Each automatic valve servicing safety-related equipment or isolating the non-nuclear safety-related portion of the system actuates to its correct position on a Safety Injection test signal, and

2) Each Essential Service Water System pump starts automatically on a Safety Injection test signal.

x c. At least once per 31 days, by verifying that each cooling tower fan operates for at least 15 minutes and at least once per 18 months by visually inspecting and verifying no abnormal breakage or degradation of the fill materials in the cooling tower.

required to be OPERABLE by Specification 3.7.5

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With only unit 1 operating, fans 0A, 0B, 0E and 0F are required. With only Unit 2 operating, fans 0C, 0D, 0G and 0H are required. With both units (and operating those fans with power supplied from each unit are required (total of 8 fans)),

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.5 Two independent ultimate heat sinks (UHS) cooling towers shall be OPERABLE, each with

a. A minimum water level in the UHS cooling tower basin of 873.75 ft msl (86% of total volume),

x b. ~~Four OPERABLE cooling tower fans (0A, 0B, 0E, 0F for U1),~~

c. One OPERABLE essential service water makeup pump per train,

x d. An essential service water pump discharge temperature of less than or equal to 80°F with less than 4 fans running in high speed, or less than or equal to 98°F with all 4 fans running in high speed,

e. A minimum Rock River water level at or above 670.6 feet mean sea level, USGS datum, at the river screenhouse, and

f. Two OPERABLE deep wells with:

(1) Rock River water level forecast by National Weather Service to exceed 702.0 feet msl, or

(2) Rock River water level at or below 670.6 ft msl, or

(3) Tornado watch issued by National Weather Service that includes Byron site area.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

a. With a water level of less than 873.75 ft msl (86% of total volume) in either UHS cooling tower basin, restore the water level to 873.75 ft msl in each UHS cooling tower basin within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

x b. With one of the fans contained in the applicable combination listed above inoperable, restore the listed fans to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

c. With one essential service water makeup pump inoperable, restore the essential service water makeup pump 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.

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SURVEILLANCE REQUIREMENTS (Continued)

b. 24 hours by verifying the essential service water pump discharge water temperature is within its limit,

c. 24 hours by verifying that the Rock River water level is within its limits.

d. 31 days by starting from the control room each UHS cooling tower fan that is required to be OPERABLE and not already in operation and operating each of those fans for at least 15 minutes.

e. 31 days by

1. Verifying that the fuel supply for each diesel powered essential service water makeup pump is at least 36% of the fuel supply tank volume.

2. Starting the diesel from ambient conditions on a simulated low basin level test signal and operating the diesel powered pump for 30 minutes.

3. Verifying that each valve (manual, power operated, or automatic) in the flow path is in its correct position.

4. ~~by~~ Starting each deep well pump and operating it for 15 minutes and verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position.

f. Each time the National Weather Service forecasts a flood condition which would create a Rock River level greater than or equal to 702.0 ft msl at the river screenhouse, or the measured river level is less than or equal to 670.6 ft msl, by starting each deep well pump and operating it for 15 minutes and verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position and verifying that each pump will provide at least a 550 gpm flow rate,

g. 92 days by verifying that a drain sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM D4057-1981, is within the acceptable limits specified in Table 1 of ASTM-D975-1977 when checked for viscosity, water, and sediment,

h. 18 months by subjecting each diesel that powers an essential service water makeup pump to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service and by cycling each testable valve in the flow path through at least one complete cycle of full travel, and

i. 18 months by verifying each deep well pump will provide at least 550 gpm flow rate.

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.10.5 The fire hose stations given in Table 3.7-5a (for Unit 1 (Table 3.7-5b for Unit 2)) shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the fire hose stations given in Table 3.7-5 inoperable, provide gated wye (s) on the nearest OPERABLE hose station(s). One outlet of the wye shall be connected to the standard length of hose provided for the hose station. The second outlet of the wye shall be connected to a length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. Where it can be demonstrated that the physical routing of the fire hose would result in a recognizable hazard to operating personnel, plant equipment, or the hose itself, the fire hose shall be stored in a roll at the outlet of the operable hose station. Signs shall be mounted above the gated wye(s) to identify the proper hose to use. The above ACTION shall be accomplished within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise route the additional hose within 24 hours.

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

SURVEILLANCE REQUIREMENTS

4.7.10.5 Each of the fire hose stations given in Table 3.7-5 shall be demonstrated OPERABLE:

a. At least once per 31 days, by a visual inspection of the fire hose stations accessible during plant operations to assure all required equipment is at the station,

b. At least once per 18 months, by:
   1) Visual inspection of the stations not accessible during plant operations to assure all required equipment is at the station,
   2) Removing the hose for inspection and re-racking, and
   3) Inspecting all gaskets and replacing any degraded gaskets in the couplings.

c. At least once per 3 years, by:
   1) Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage, and
   2) Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

TABLE 3.7-5a

FIRE HOSE STATIONS (Unit 1)

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Roof				
L-10:	South wall U-1 of safety valve penthouse	481	1	0FP331
L-26:	North wall U-2 of safety valve penthouse	481	2	0FP338
Aux. Bldg.				
S-18:	By dumb waiter	480	233	0FP458
S-15:	By U-1 prefilters (near stairs)	471	176	0FP329
S-21:	By U-2 prefilters (near stairs)	471	177	0FP334
Q-17:	Wall by elevator in upper cable room	469	244*	0FP469
Q-19:	Wall by stairs in upper cable room	469	252*	0FP477
L-11:	Outside Southeast corner of upper cable spreading room A-1	467	240	0FP465
L-14:	By the southeast door of UCSR C-1	467	241*	0FP466
M-13:	By the northwest corner of UCSR A-1	467	242*	0FP467
Q-13:	In the northwest corner of UCSR B-1	467	243*	0FP468
P-18:	Northwest corner of UCSR C-1	467	245*	0FP470
M-18:	North wall of UCSR C-1	467	246*	0FP471
M-18:	South wall of UCSR C-2	467	247*	0FP472
L-25:	Outside northeast corner of UCSR A-2	467	248	0FP473
L-22:	In the northeast corner of UCSR C-2	467	249*	0FP474
M-23:	In the southwest corner of UCSR A-2	467	250*	0FP475
P-20:	West wall of UCSR C-2	467	251*	0FP476
Q-23:	In the southwest corner of UCSR B-2	467	253*	0FP478
S-21:	By U-2 VA Filters (U-2 side)	464	232	0FP457
S-15:	By U-1 VA Filters (U-1 side)	464	234	0FP459
S-21:	By VA Filters (U-2 side)	456	231	0FP456
S-15:	By VA Filters (U-1 side)	456	235	0FP460
Q-24	Radwaste Drumming Station	387	110	0FP375
L-10:	By Control room refrig. units	387	106	0FP385
L-12:	By blowdown after filters	387	107	0FP384
S-19	By 2A RHR Heat Exchanger Room	387	112	0FP378

*Fire hoses that do not supply the primary means of fire suppression.

TABLE 3.7-5a (Continued)
(unit 1)
FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Bldg. (Continued)				
M-26	Radwaste Control Panel	387	109	OFP377
M-18:	By Aux. Feedwater motor driven pump 1A	387	108	OFP383
M-23:	By remote shutdown panel U-1	387	111	OFP376
Q-15:	By 480V MCC 132X3	387	113	OFP382
V-18:	By letdown heat exchanger	387	114	OFP379
P-7:	West Wall 6.9 kV switchgear room	455	20	OFP324
L-11:	In UC HVAC Rm 0A of LCSR C-1	455	22	OFP332
L-25:	By OBVC HVAC Room	455	27	~~0A~~ FP335
M-8:	South wall of battery room	451	279	OFP638
M-26:	South wall of battery room	451	280	OFP639
M-18:	North wall U-1 AB by door	444	238*	OFP463
L-7:	East wall LCSR A-1	443	207*	OFP330
M-10:	In the southeast corner of LCSR B-1	443	208*	OFP327
P-10:	In the southwest corner of LCSR B-1	443	209*	OFP325
M-13:	South wall of LCSR C-1	443	210*	OFP326
P-13:	West wall of LCSR D-1	443	211*	OFP328
S-21:	By cabinet 2RY01EC (elec. pen. area)	431	229	OFP454
S-24:	By U-2 cont. shield wall (elec pen. area)	431	230	OFP455
S-15:	By Pzr htr. transformer (elec pen. area)	431	236	OFP461
S-12:	By U-1 cont. shield wall (elec pen. area)	431	237	OFP462
M-18	Rad Chem Offices	430	57	OFP323
Q-10:	Back of Div. 11 swgr room	430	283	OFP640
P-11:	Outside Laundry Room	430	52	OFP313
Q-19:	By U-2 VCT valve aisle	430	54	OFP342
P-24:	By radwaste evaporator	430	55	OFP343
V-17:	By east door to decon/change area	430	58	OFP319
V-17:	By west door to decon/change area	430	61	OFP320
S-15:	By Pzr. htr. transformer (elec pen. area)	419	174	OFP322
Q-10:	By electrical penetration area	419	205	OFP321
L-11:	By waste oil tank room	405	90	OFP315
P-18:	By elevator	405	91	OFP318
P-23:	By spent resin pumps	405	92	OFP349
Q-11:	By laundry tanks	405	93	OFP314
S-21:	East of U-2 hydrogen recombiner	405	94	OFP348
V-21:	West of U-2 hydrogen recombiner	405	95	OFP345

See Attachment A

*Fire hoses that do not supply the primary means of fire suppression.

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Attachment A

		Elev.	Hose Rack Reel	Angle Valve
M-18	Southwall of LCSR U-2 AB By Door	443	239*	OFP464
L-29	East Wall LCSR A-2	443	212*	OFP335
M-26	In Northeast Corner of LCSR B-2	443	213*	OFP337
P-26	In Northwest corner of LCSR B-2	443	214*	OFP340
M-23	North Wall of LCSR C-2	443	215*	OFP341
F-21	East Wall of LCSR D-2	443	216*	OFP333

TABLE 3.7-5a (Continued)
(Unit 1)
FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Bldg. (Continued)				
V-15:	West of U-1 hydrogen recombiner control panel	405	96	0FP316
S-15:	East of U-1 hydrogen recombiner	405	97	0FP317
N-11:	By the recycle holdup tanks	368	130	0FP373
M-13:	By the U-1 stairs	368	131	0FP374
P-13:	By panel 1PL84JB	368	132	0FP369
L-20:	By the U-2 stairs	368	133	0FP355
P-21:	By the blowdown condenser	368	134	0FP356
L-25:	By the PW M/U pumps	368	135	0FP361
N-25:	By chemical drain tank	368	136	0FP357
S-18:	By panel 1PL86J	368	138	0FP362
Q-11:	By Aux. Bldg. floor drain tanks	368	139	0FP368
U-15:	By U-1 spray add tank	368	140	0FP372
V-18:	By U-2 cent. chg. pump room	368	141	0FP366
P-11:	By recycle evaporator feed pumps	350	151	0FP381
M-13:	By U-1 stairs	350	152	0FP370
N-23:	By gas decay tanks	350	154	0FP352
Q-19:	By "B" Aux. Bldg. Equip. drain tank	350	155	0FP365
Q-17:	By "A" Aux. Bldg. Equip. drain tank	350	156	0FP371
Q-13:	By collection sump pumps	350	157	0FP380
S-18:	Between moderating heat exchangers	350	158	0FP354
V-18:	Between BR chiller units	350	161	0FP353
W-15:	By CS pump 1A	350	163	0FP367
L-19	By 0B RECYCLE EVAP RM	350	153	0FP363
M-13:	By leak detection sump	334	165	0FP448
P-18:	By elevator pit	334	166	0FP449
P-18:	By 1B SX pump room	334	167	0FP351
M-23:	By 1B SX pump room	334	168	0FP350
Fuel Hand. Bldg.				
Z-15:	South of decon. area	430	170	0FP389
X-21:	North of spent fuel pool	430	171	0FP386
Z-15:	By 480V MCC 134X6	405	172	0FP388
AA-19:	Outside FC pump room	405	173	0FP387
Cont. #1				
R-17:	By reactor head assembly area	430	62	1FP163
R-2:	By accumulator tank 1C	430	63	1FP154

TABLE 3.7-5a (Continued)
(unit 1)
FIRE HOSE STATIONS

LOCATION	ELEVATION	HOSE RACK REEL	ANGLE VALVE
Cont. #1 (Continued)			
R-7: By equipment hatch	430	64	1FP160
R-12: By charcoal filter 1A	430	65	1FP157
R-17: By south stairs	403	98	1FP164
R-2: By RCFC 1C	403	99	1FP155
R-7: By pressurizer (outside missile shield)	403	100	1FP161
R-12: By panel 1PL69J	403	101	1FP158
R-12: By PRT	381	143	1FP159
R-17: By south stairs	381	144	1FP162
R-2: By RCFC 1C	381	145	1FP156
R-7: By panel 1PL52J	381	146	1FP165
Turbine Bldg.			
K-14: By the control room	451	16	1FP194
L-6 Outside 1B D/G Rm	405	87	1FP183
K-10 Outside 1A D/G Rm	405	281	1FP275
L-7 Basement of Turbine Bldg.	361	129	1FP184
L-7 Outside DIV 12 SWGR	430	47	1FP181
L-10 Outside Div 11 SWGR	430	51	1FP182
L-5 Outside non-ESF SWGR	455	18	1FP180
L-10 Outside Battery Rm	455	21	1FP179

TABLE 3.7-5b

FIRE HOSE STATIONS

Unit 2

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Roof				
L-10:	South wall U-1 of safety valve penthouse	481	1	0FP331
L-26:	North wall U-2 of safety valve penthouse	481	2	0FP338
Aux. Bldg.				
S-18:	By dumb waiter	480	233	0FP458
S-15:	By U-1 prefilters (near stairs)	471	176	0FP329
S-21:	By U-2 prefilters (near stairs)	471	177	0FP334
Q-17:	Wall by elevator in upper cable room	469	244*	0FP469
Q-19:	Wall by stairs in upper cable room	469	252*	0FP477
L-11:	Outside Southeast corner of upper cable spreading room A-1	467	240	0FP465
L-14:	By the southeast door of UCSR C-1	467	241*	0FP466
M-13:	By the northwest corner of UCSR A-1	467	242*	0FP467
Q-13:	In the northwest corner of UCSR B-1	467	243*	0FP468
P-18:	Northwest corner of UCSR C-1	467	245*	0FP470
M-18:	North wall of UCSR C-1	467	246*	0FP471
M-18:	South wall of UCSR C-2	467	247*	0FP472
L-25:	Outside northeast corner of UCSR A-2	467	248	0FP473
L-22:	In the northeast corner of UCSR C-2	467	249*	0FP474
M-23:	In the southwest corner of UCSR A-2	467	250*	0FP475
P-20:	West wall of UCSR C-2	467	251*	0FP476
Q-23:	In the southwest corner of UCSR B-2	467	253*	0FP478
S-21:	By U-2 VA Filters (U-2 side)	464	232	0FP457
S-15:	By U-1 VA Filters (U-1 side)	464	234	0FP459
S-21:	By VA Filters (U-2 side)	456	231	0FP456
S-15:	By VA Filters (U-1 side)	456	235	0FP460
Q-24	Radwaste Drumming Station	387	110	0FP375
L-10:	By control room refrig. units	387	106	0FP385
L-12:	By blowdown after filters	387	107	0FP384
S-19	By 2A RHR Heat Exchanger Room	387	112	0FP378

*Fire hoses that do not supply the primary means of fire suppression.

TABLE 3.7-5b (Continued)

(Unit 2) FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Bldg. (Continued)				
M-16	Radwaste Control Panel	387	109	OFP377
M-18:	By Aux. Feedwater motor driven pump 1A	387	108	OFP383
N-23:	By remote shutdown panel U-1	387	111	OFP376
Q-15:	By 480V MCC 132X3	387	113	OFP382
V-18:	By letdown heat exchanger	387	114	OFP379
Insert "A" L-11:	In UC HVAC Rm 0A of LCSR C-1	455	22	OFP332
L-25:	By OBVC HVAC Room	455	27	OFP335
M-8:	South wall of battery room	451	279	OFP638
M-26:	South wall of battery room	451	280	OFP639
H-18:	North wall U-1 AB by door	444	238*	OFP463
L-7:	East wall LCSR A-1	443	207*	OFP330
M-10:	In the southeast corner of LCSR B-1	443	208*	OFP327
P-10:	In the southwest corner of LCSR B-1	443	209*	OFP325
M-13:	South wall of LCSR C-1	443	210*	OFP326
P-13:	West wall of LCSR D-1	443	211*	OFP328
Insert "B" S-21:	By cabinet 2RY01EC (elec. pen. area)	431	229	OFP454
S-24:	By U-2 cont. shield wall (elec pen. area)	431	230	OFP455
S-15:	By Pzr htr. transformer (elec pen. area)	431	236	OFP461
S-12:	By U-1 cont. shield wall (elec pen. area)	431	237	OFP462
M-18	Rad Chem Offices	430	57	OFP323
P-11:	Outside Laundry Room	430	52	OFP313
Q-19:	By U-2 VCT valve aisle	430	54	OFP342
P-24:	By radwaste evaporator	430	55	OFP343
V-17:	By east door to decon/change area	430	58	OFP319
V-17:	By west door to decon/change area	430	61	OFP320
Insert "C"				
Insert "D" L-11:	By waste oil tank room	405	90	OFP315
P-18:	By elevator	405	91	OFP318
P-23:	By spent resin pumps	405	92	OFP349
Q-11:	By laundry tanks	405	93	OFP314
S-21:	East of U-2 hydrogen recombiner	405	94	OFP348
V-21:	West of U-2 hydrogen recombiner	405	95	OFP345

*Fire hoses that do not supply the primary means of fire suppression.

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TABLE 3.7-5b (Continued)

(Unit 2) FIRE HOSE STATIONS

LOCATION		ELEVATION	HOSE RACK REEL	ANGLE VALVE
Aux. Bldg. (Continued)				
V-15:	West of U-1 hydrogen recombiner control panel	405	96	OFP316
S-15:	East of U-1 hydrogen recombiner	405	97	OFP317
N-11:	By the recycle holdup tanks	368	130	OFP373
M-13:	By the U-1 stairs	368	131	OFP374
P-13:	By panel 1PL84JB	368	132	OFP369
L-20:	By the U-2 stairs	368	133	OFP355
P-21:	By the blowdown condenser	368	134	OFP356
L-25:	By the PW M/U pumps	368	135	OFP361
N-25:	By chemical drain tank	368	136	OFP357
S-18:	By panel 1PL86J	368	138	OFP362
Q-11:	By Aux. Bldg. floor drain tanks	368	139	OFP368
Insert "E"				
V-18:	By U-2 cent. chg. pump room	368	141	OFP366
P-11:	By recycle evaporator feed pumps	350	151	OFP381
M-13:	By U-1 stairs	350	152	OFP370
N-23:	By gas decay tanks	350	154	OFP352
Q-19:	By "B" Aux. Bldg. Equip. drain tank	350	155	OFP365
Q-17:	By "A" Aux. Bldg. Equip. drain tank	350	156	OFP371
S-18:	Between moderating heat exchangers	350	158	OFP354
V-18:	Between BR chiller units	350	161	OFP353
X L-19	BY 0B RECYCLE EVAP RM	350	153	OFP363
M-13:	By leak detection sump	334	165	OFP448
Insert "F"				
P-18:	By elevator pit	334	166	OFP449
P-18:	By 1B SX pump room	334	167	OFP351
M-23:	By 1B SX pump room	334	168	OFP350
Fuel Hand. Bldg.				
Z-15:	South of decon. area	430	170	OFP389
X-21:	North of spent fuel pool	430	171	OFP386
Z-15:	By 480V MCC 134X6	405	172	OFP388
AA-19:	Outside FC pump room	405	173	OFP387

Cont. DX #2

Insert "H"

Turbine Bldg.

Insert "I"

Inserts to Table 3.7-5b (Sheet 1 of 2)

Insert "A"

P-29:	WEST WALL 6.9kV SWGR Rm U-2	455	29	OFP339

Insert "B"

N-18	Southwall of LCSR U-2 AB By Door	443	239*	OFP464
L-29	East Wall LCSR A-2	443	212*	OFP336
M-26	In Northeast Corner of LCSR B-2	443	213*	OFP337
P-26	In Northwest corner of LCSR B-2	443	214*	OFP340
M-23	North Wall of LCSR C-2	443	215*	OFP341
P-21	East Wall of LCSR D-2	443	216*	OFP333

Insert "C"

V-19:	By WEST DOOR TO DECON PAD & STORAGE	430	59	OFP344
Q-26:	Back of DIV. 21 SWGR ROOM	430	284	OFP641

Insert "D"

S-21:	By U-2 PZR. HTR. TRANSFORMER (ELEC. PEN AREA)	419	175	OFP347
Q-26:	By U-2 ELECT. PENETRATION AREA	419	206	OFP346

Insert "E"

Q-25:	By SPENT RESIN FLUSHING PUMP	368	137	OFP360
U-21:	By U-2 SPRAY ADD TANK	368	142	OFP358

Inserts to Table 3.7-5b (Sheet 2 of 2)

Insert "F"

Q-21:	By U-2 COLLECTION SUMP PUMPS	350	159	OFP364
W-21:	By CS PUMP-2A	350	164	OFP359

Insert "H"

Cont - Unit 2

R-26	By personnel hatch	430	66	2FP163
R-31	By west stairs	430	67	2FP154
R-37	By reactor head assembly area	430	68	2FP160
R-42	By charcoal filter 2A	430	69	2FP157
R-26	By pressurizer (outside missile shield)	403	102	2FP164
R-31	By west stairs	403	103	2FP155
R-37	By north stairs	403	104	2FP161
R-42	Outside missile barrier by Loop D MS pipe	403	105	2FP158
R-26	By Panel 2PL52J	381	147	2FP165
R-31	By west stairs	381	148	2FP156
R-37	By north stairs	381	149	2FP162
R-42	By PRT	381	150	2FP159

Insert "I"

Turbine Bldg

L-30	Outside Unit 2 non-ESF swgr.	455	14	2FP232
L-24	In IM shop	455	15	2FP237
L-26	Outside Unit 2 battery rooms	455	28	2FP233
L-29	Outside Div. 22 swgr.	430	42	2FP231
L-26	Outside Div. 21 swgr.	430	56	2FP230
L-29	Outside 2B D/G room	405	82	2FP229
K-28	Outside 2A D/G room	405	282	2FP275
L-29	By 2C cond/cond booster pump	364	124	2FP228

TABLE 3.7-6

AREA TEMPERATURE MONITORING

	AREA	TEMPERATURE LIMIT (°F)
1.	Misc. Electric Equipment and Battery Rooms	108
2.	ESF Switchgear Rooms	108
3.	Division 12 for Unit 1 (Division 22 for Unit 2) Cable Spreading Room	108
4.	Upper and Lower Cable Spreading Rooms	90
5.	Diesel-Generator Rooms	132
6.	Diesel Oil Storage Rooms	132
7.	Aux. Building Vent Exhaust Filter Cubicle	122
8.	Centrifugal Charging Pump Rooms	122
9.	Containment Spray Pump Rooms	130
10.	RHR Pump Rooms	130
11.	Safety Injection Pump Room	130
12.	Control Room	90

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ACTION (Continued)

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

2. When in MODE 1, 2, or 3, the diesel-driven auxiliary feedwater pump is OPERABLE and the ~~Unit 2,~~ other units A diesel generator is OPERABLE,* if the inoperable diesel generator is the emergency power supply for the motor-driven auxiliary feedwater pump.

If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Specification 4.8.1.1.2a.4) within 1 hour and at least once per 8 hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from 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.

e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Specification 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 72 hours from time of initial loss or be in least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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*Until 2 years after issuance of an operating license for Unit 1 the Unit 2, A diesel generator must be capable of providing power to bus 141, and the LCO, ACTION and SURVEILLANCE requirements of Specifications 3/4.8.1.3 shall be applicable. Subsequently, LCO 3.8.1.1.b.1), 2), and 3), and Surveillance Requirements 4.8.1.1.2 shall be applicable to the Unit 2, A diesel as applicable for demonstrating that the Unit 2, A diesel is OPERABLE as an emergency power supply for the Unit 1 motor-driven auxiliary feedwater pump.

13) Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

a) Turning gear engaged, and

b) Emergency stop.

g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 600 rpm in less than or equal to 10 seconds; and

h. At least once per 10 years by:

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

2) Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsect on ND of the ASME Code at a test pressure equal to 110 percent of the system design pressure.

i. *At least once per 31 days by:

#1) Verifying the capability of crosstieing the Unit 2, A diesel generator to Bus 141 by independently performing the following:

a) Synchronizing the Unit 2, A diesel generator to Bus 241.

b) Closing breaker 1414.

c) Closing breaker 2414.

Insert attachment A →

j. *At least once per 18 months by:

#1) Crosstieing the 2A diesel generator to Bus 141.

Insert attachment B →

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.9.2. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests (on a per nuclear unit basis) is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

*This surveillance only applies to MODES 1, 2, and 3 and is not applicable until 2 years after issuance of an operating license for Unit 1.

Only required for Unit 1 operation in MODES 1, 2, or 3

Only required for Unit 2 operation in MODES 1, 2, or 3

Insert to page 3/4 8-7

Attachment A

2) Verifying the capability of crosstieing the Unit 1, A diesel generator to Bus 241 by independently performing the following:

a) Synchronizing the Unit 1, A diesel generator to Bus 141.

b) Closing breaker 1414.

c) Closing breaker 2414.

Attachment B

2) Crosstieing the 1A diesel generator to Bus 241.

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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

a. 125-Volt D.C. Bus 111 fed from Battery 111 for Unit 1 (Bus 211 fed from Battery 211 for Unit 2), and its associated full capacity charger, and

b. 125-Volt D.C. Bus 112 fed from Battery 112 for Unit 1 (Bus 212 fed from Battery 212 for Unit 2), and its associated full capacity charger.

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

ACTION:

a. With one of the required battery banks and/or chargers inoperable, restore the inoperable battery bank and/or battery bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With the normal full capacity charger inoperable: 1) restore the affected battery and/or battery bus to operable status with the opposite units full capacity charger within 2 hours or be in at least ~~Hot Standby~~ HOT STANDBY within the next 6 hours and in ~~Cold Shutdown~~ COLD SHUTDOWN within the following 30 hours, and 2) restore the normal full capacity charger to operable status within 24 hours or be in at least ~~Hot Standby~~ HOT STANDBY within the next 6 hours and in ~~Cold Shutdown~~ COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.1.1 Each D.C. bus shall be determined OPERABLE and energized from its battery at least once per 7 days by verifying correct breaker alignment.

4.8.2.1.2 Each 125-volt battery bank and its associated charger shall be demonstrated OPERABLE:

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

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

2) The total battery terminal voltage is greater than or equal to 126 volts on float charge.

*This specification is only applicable prior to Unit 2 operation in MODE 4.

ELECTRICAL POWER SYSTEMS

3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following electrical busses shall be energized in the specified manner for the applicable unit:

a. A.C. ESF Busses consisting of:

UNIT 1	UNIT 2
Division 11	Division 21
1) 4160-Volt Bus 141,	1) 4160-Volt Bus 241
2) 480-Volt Bus 131X, and	2) 480-Volt Bus 231X and
3) 480-Volt Bus 131Z.	3) 480-Volt Bus 231Z.

b. A.C. ESF Busses consisting of:

UNIT 1	UNIT 2
Division 12	Division 22
1) 4160-Volt Bus 142	1) 4160-Volt Bus 242
2) 480-Volt Bus 132X, and	2) 480-Volt Bus 232X, and
3) 480-Volt Bus 132Z.	3) 480-Volt Bus 232Z

c. 120-Volt A.C. Instrument Bus 111 for Unit 1 (Bus 211 for Unit 2) energized from its associated inverter connected to D.C. Bus 111 for Unit 1 (Bus 211 for Unit 2),

d. 120-Volt A.C. Instrument Bus 113 for Unit 1 (Bus 213 for Unit 2) energized from its associated inverter connected to D.C. Bus 111 for Unit 1 (Bus 211 for Unit 2),

e. 120-Volt A.C. Instrument Bus 112 for Unit 1 (Bus 212 for Unit 2) energized from its associated inverter connected to D.C. Bus 112, ~~and~~ for Unit 1 (Bus 212 for Unit 2), and

f. 120-Volt A.C. Instrument Bus 114 for Unit 1 (Bus 214 for Unit 2) energized from its associated inverter connected to D.C. Bus 112, for Unit 1 (Bus 212 for Unit 2).

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

ACTION:

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

b. With one A.C. instrument bus either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: 1) reenergize the A.C. instrument bus within 2 hours or be in at least ~~Hot Standby~~ HOT STANDBY within the next 6 hours and in ~~Cold Shutdown~~ COLD SHUTDOWN within the following 30 hours, and 2) reenergize the A.C. instrument bus from its associated inverter connected to its associated D.C. bus within 24 hours or be in at least ~~Hot Standby~~ HOT STANDBY within the next 6 hours and in ~~Cold Shutdown~~ COLD SHUTDOWN within the following 30 hours.

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ELECTRICAL POWER SYSTEMS

ONSITE POWER DISTRIBUTION

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following A.C. electrical busses shall be operable and energized in the specified manner:

a. One 4160-Volt ESF Bus (141 or 142 for Unit 1)(241 or 242 for Unit 2)

b. One 480-Volt ESF Bus (131X or 132X for Unit 1)(231X or 232X for Unit 2),

c. One 480-Volt ESF Bus (131Z or 132Z ~~, and~~ for Unit 1)(231Z or 232Z for Unit 2), and

d. Two of the 120-Volt A.C. instrument busses powered from their associated inverter with the inverter connected to its D.C. power supply.

APPLICABILITY: MODES 5 and 6.

ACTION:

With any of the above required A.C. busses inoperable or not energized, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the spent fuel pool, and within 8 hours depressurize and vent the RCS through at least a 2 square inch vent. In addition, when in MODE 5 with the reactor coolant loops not filled or in MODE 6 with less than 23 feet of borated water covering the reactor vessel flange, immediately initiate corrective action to restore the required A.C. busses to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.8.3.2 The specified busses 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.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All containment penetration conductor overcurrent protective devices given in Table 3.8-1a shall be OPERABLE. for unit 1 (Table 3.8-1b unit 2)

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

ACTION:

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

a. Restore the protective device(s) to OPERABLE status or de-energize the circuit(s) by tripping the associated circuit breaker or racking out or removing the inoperable circuit breaker within 72 hours, declare the affected system or component inoperable, and verify the circuit breaker to be tripped or the inoperable circuit breaker racked out, or removed, at least once per 7 days thereafter; the provisions of Specification 3.0.4 are not applicable to overcurrent devices in circuits which have their circuit breakers tripped, their inoperable circuit breakers racked out, or removed, or

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

SURVEILLANCE REQUIREMENTS

4.8.4.1 All containment penetration conductor overcurrent protective devices given in Table 3.8-1 shall be demonstrated OPERABLE:

a. At least once per 18 months:

1) By verifying that the 6.9 kV and the 4.16 kV circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers, and performing the following:

a) A CHANNEL CALIBRATION of the associated protective relays,

b) An integrated system functional test which includes simulated automatic actuation of the system to demonstrate that the overall penetration protection design remains within operable limits.

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TABLE 3.8-1a

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
1. 6.9 kV Switchgear	
1RC01PA-RCPA Bus 157 Cub 1	Primary
Bus 157 Norm. Feed ACB 1571	Backup
Bus 157 Emerg. Feed ACB 1572	Backup
1RC01PB-RCPB Bus 156 Cub 2	Primary
Bus 156 Norm. Feed ACB 1561	Backup
Bus 156 Emerg. Feed ACB 1562	Backup
1RC01PC-RCPC Bus 158 Cub 5	Primary
Bus 158 Norm. Feed ACB 1582	Backup
Bus 158 Emerg. Feed ACB 1581	Backup
1RC01PD - RCPD Bus 159 Cub 5	Primary
Bus 159 Norm. Feed ACB 1592	Backup
Bus 159 Emerg. Feed ACB 1591	Backup
2. 480V Switchgear	
1RY03EA - Pzr. Htr. Backup Group A Compt. A1-A6, B1	Primary Backup
1RY03EB - Pzr. Htr. Backup Group B Compt. B1-B6, A1	Primary Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
2. 480V Switchgear (Continued)	
1RY03EC - Pzr.	Primary
Htr. Backup Group C Compt. A1-A6	Backup
1RY03ED - Pzr.	Primary
Htr. Backup Group D Compt. B1-B6	Backup
3. 480V A.C. Ckt. Bkrs.	
1VP01CA - RCFC Fan 1A Low Speed Feed Bkr Swgr 131X Cub 4C	Primary
Hi Speed Feed Bkr Swgr 131X Cub 5C	Primary
1VP01CC - RCFC Fan 1C Low Speed Feed Bkr Swgr 131X Cub 2C	Primary
Hi Speed Feed Bkr Swgr 131X Cub 3C	Primary
Bus 131X Norm. Feed 141 Swgr., Cub 19, ACB 1415X	Backup
1VP01CB - RCFC Fan 1B Low Speed Feed Bkr Swgr 132X Cub 4C	Primary
Hi Speed Feed Bkr Swgr 132X Cub 5C	Primary
1VP01CD - RCFC Fan 1D Low Speed Feed Bkr Swgr 132X Cub 2C	Primary

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
3. 480V A.C. Ckt. Bkrs. (Continued)	
Hi Speed Feed Bkr Swgr 132X Cub 3C	Primary
Bus 132X Norm. Feed 142 Swgr., Cub 14, ACB 1425X	Backup
4. 480V Molded Case Ckt. Bkrs. (MCCB)	
	MCC 133X4
1RC01PA-A Cub B1	Primary Backup
1RC01PA-B Cub B2	Primary Backup
1HC22G Cub B3	Primary Backup
1FH03G Cub B4	Primary Backup
1VP05CA Cub C1	Primary Backup
1RF03P Cub C2	Primary Backup
1RC01PD-A Cub D1	Primary Backup
1RC01PD-B Cub D2	Primary Backup
1RF02PB Cub D4	Primary Backup
1RF01P Cub D5	Primary Backup

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TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 133X4
1RE01PA Cub D6	Primary Backup
1VP02CA Cub E1	Primary Backup
1VP04CA Cub E2	Primary Backup
1VP04CC Cub F1	Primary Backup
1EW11EA,B,C Cub F3	Primary Backup
1IC02EA Cub F5	Primary Backup
1IC02EB Cub G1	Primary Backup
1IC02EC Cub G2	Primary Backup
	MCC 134X5
1IC02EF Cub A1	Primary Backup
1IC02EE Cub A2	Primary Backup
1IC02ED Cub A3	Primary Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 134X5
1FH02J Cub G1	Primary Backup
1FH03J Cub G2	Primary Backup
1RC01PB-B Cub B1	Primary Backup
1RE01PB Cub B3	Primary Backup
1RC01PC-A Cub C1	Primary Backup
1RC01PC-B Cub C2	Primary Backup
1VP05CB Cub J1	Primary Backup
1RC01PB-A Cub C3	Primary Backup
1HC65G-A Cub D3	Primary Backup
1VP02CB Cub F1	Primary Backup
1RC01R-A Cub F2 A&B	Primary Backup
1RF02PA Cub G3	Primary Backup
1EW12EA,B,C Cub F3 A&B	Primary Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 134X5
1VP04CB Cub F4	Primary Backup
1VP04CD Cub F5	Primary Backup
	MCC 132X2A
1SI8808C Cub A2	Primary
MCC 132X2 Cub B2	Backup
1SI8808B Cub A3	Primary
MCC 132X2 Cub B2	Backup
	MCC 132X2
1RH8702B Cub B1	Primary Backup
1RH8701B Cub B3	Primary Backup
1CV8112 Cub B4	Primary Backup
1OG079 Cub C1	Primary Backup
1WO056A Cub C2	Primary Backup
1OG080 Cub C3	Primary Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 460V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 132X2
1RY8000B Cub C4	Primary Backup
1RC8003C Cub D5	Primary Backup
1RC8003B Cub D4	Primary Backup
1RC8002A Cub G1	Primary Backup
1RC8002B Cub G2	Primary Backup
1RC8002C Cub G3	Primary Backup
1RC8002D Cub G4	Primary Backup
	MCC 131X2A
1SI8808D Cub A2	Primary
MCC 131X2 Cub B2	Backup
1SI8808A Cub A3	Primary
MCC 131X2 Cub B2	Backup
	MCC 131X2
1RC8001A Cub G1	Primary Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 131X2
1RC8001B Cub G2	Primary Backup
1RC8001C Cub G3	Primary Backup
1RC8001D Cub G4	Primary Backup
1RH8701A Cub B1	Primary Backup
1RH8702A Cub B4	Primary Backup
1LL42J Cub C1	Primary Backup
1VQ001A Cub C3	Primary Backup
1VQ002A Cub F1	Primary Backup
1RC8003D Cub C4	Primary Backup
1RC8003A Cub C5	Primary Backup
1OG057A Cub D1	Primary Backup
1CC9416 Cub D3	Primary Backup
1CC9438 Cub D4	Primary Backup
1OG081 Cub E2	Primary Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 133X6
1HC01G - Cub B2	Primary
Cub B1	Backup
1LL04E - Cub C2	Primary
Cub C1	Backup
1VP03CA	Primary
Cub A3	Backup
1VP03CD	Primary
Cub C4	Backup
	MCC 134X7
1LL05E - Cub B2	Primary
Cub B1	Backup
1VP03CB	Primary
Cub A3	Backup
1VP03CC	Primary
Cub B4	Backup
	MCC 131X2B
1WO056B	Primary
Cub A4	Backup
1RY8000A	Primary
Cub A5	Backup

TABLE 3.8-1a (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 1)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
5. 260 VAC RCD Power (53 rods, 5 panels)	
Stationary Gripper Coils (all panels)	Primary Backup
Lift Coils (all panels)	Primary Backup
Movable Gripper Coils (all panels)	Primary Backup

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TABLE 3.8-1b

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
1. 6.9 kV Switchgear	
2RC01PA-RCPA Bus 257 Cub 7	Primary
Bus 257 Norm. Feed ACB ~~1571~~ 2571	Backup
Bus 257 Emerg. Feed ACB ~~1572~~ 2572	Backup
2RC01PB-RCPB Bus 256 Cub 5	Primary
Bus 256 Norm. Feed ACB ~~1561~~ 2561	Backup
Bus 256 Emerg. Feed ACB ~~1562~~ 2562	Backup
2RC01PC-RCPC Bus 258 Cub 3	Primary
Bus 258 Norm. Feed ACB ~~1582~~ 2582	Backup
Bus 258 Emerg. Feed ACB ~~1581~~ 2581	Backup
2RC01PD - RCPD Bus 259 Cub 3	Primary
Bus 259 Norm. Feed ACB ~~1592~~ 2592	Backup
Bus 259 Emerg. Feed ACB ~~1591~~ 2591	Backup
2. 480V Switchgear	
2RY03EA - Pzr.	Primary
Htr. Backup Group A Compt. B1-B6, A1	Backup
2RY03EB - Pzr.	Primary
Htr. Backup Group B Compt. ~~B1-B6, A1~~ A1-A6, B1	Backup

TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
2. 480V Switchgear (Continued)	
2RY03EC - Pzr.	Primary
Htr. Backup Group C Compt. ~~A1-A6~~ B1-B6	Backup
2RY03ED - Pzr.	Primary
Htr. Backup Group D Compt. ~~B1-B6~~ A1-A6	Backup
3. 480V A.C. Ckt. Bkrs.	
2VP01CA - RCFC Fan 2A Low Speed Feed Bkr Swgr 231X Cub 4C	Primary
Hi Speed Feed Bkr Swgr 231X Cub 5C	Primary
2VP01CC - RCFC Fan 2C Low Speed Feed Bkr Swgr 231X Cub 2C	Primary
Hi Speed Feed Bkr Swgr 231X Cub 3C	Primary
Bus 231X Norm. Feed 241 Swgr., Cub ~~19~~ 4 ACB 2415X	Backup
2VP01CB - RCFC Fan 2B Low Speed Feed Bkr Swgr 232X Cub 4C	Primary
Hi Speed Feed Bkr Swgr 232X Cub 5C	Primary
2VP01CD - RCFC Fan 2D Low Speed Feed Bkr Swgr 232X Cub 2C	Primary

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TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
3. 480V A.C. Ckt. Bkrs. (Continued)	
Hi Speed Feed Bkr Swgr 2~~1~~32X Cub 3C	Primary
Bus ~~1~~232X Norm. Feed 2~~1~~42 Swgr., Cub ~~14~~ B ACB ~~1425X~~ 2425.	Backup
4. 480V Molded Case Ckt. Bkrs. (MCCB)	
	MCC ~~1~~233X4
2~~1~~RC01PA-A Cub B1	Primary Backup
2~~1~~RC01PA-B Cub B2	Primary Backup
2~~1~~HC22G Cub B3	Primary Backup
2~~1~~FH03G Cub B4	Primary Backup
2~~1~~VP05CA Cub C1	Primary Backup
2~~1~~RF03P Cub C2	Primary Backup
2~~1~~RC01PD-A Cub D1	Primary Backup
2~~1~~RC01PD-B Cub D2	Primary Backup
2~~1~~RF02PB Cub D4	Primary Backup
2~~1~~RF01P Cub D5	Primary Backup

TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 2~~1~~33X4
2~~1~~RE01PA Cub D6	Primary Backup
2~~1~~VP02CA Cub E1	Primary Backup
2~~1~~VP04CA Cub E2	Primary Backup
2~~1~~VP04CC Cub F1	Primary Backup
2~~1~~EW11EA,B,C Cub F3	Primary Backup
2~~1~~IC02EA Cub F5	Primary Backup
2~~1~~IC02EB Cub G1	Primary Backup
2~~1~~IC02EC Cub G2	Primary Backup
	MCC 2~~1~~34X5
2~~1~~IC02EF Cub A1	Primary Backup
2~~1~~IC02EE Cub A2	Primary Backup
2~~1~~IC02ED Cub A3	Primary Backup

TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 234X5
2 ~~1~~FH02J Cub G1	Primary Backup
2 ~~1~~FH03J Cub G2	Primary Backup
2 ~~1~~RC01PB-B Cub B1	Primary Backup
2 ~~1~~RE01PB Cub B3	Primary Backup
2 ~~1~~RC01PC-A Cub C1	Primary Backup
2 ~~1~~RC01PC-B Cub C2	Primary Backup
2 ~~1~~VP05CB Cub J1	Primary Backup
2 ~~1~~RC01PB-A Cub C3	Primary Backup
2 ~~1~~HC65G-A Cub D3	Primary Backup
2 ~~1~~VP02CB Cub F1	Primary Backup
2 ~~1~~RC01R-A Cub F2 A&B	Primary Backup
2 ~~1~~RF02PA Cub G3	Primary Backup
2 ~~1~~EW12EA,B,C Cub F3 A&B	Primary Backup

TABLE 3.8-1~~a~~b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC ~~1~~2 34X5
2 ~~1~~VP04CB Cub F4	Primary Backup
2 ~~1~~VP04CD Cub F5	Primary Backup
	MCC ~~1~~2 32X2A
2 ~~1~~SI8808C Cub A2	Primary
MCC ~~1~~2 32X2 Cub B2	Backup
2 ~~1~~SI8808B Cub A3	Primary
MCC ~~1~~2 32X2 Cub B2	Backup
	MCC ~~1~~2 32X2
2 ~~1~~RH8702B Cub B1	Primary Backup
2 ~~1~~RH8701B Cub B3	Primary Backup
2 ~~1~~CV8112 Cub B4	Primary Backup
2 ~~1~~0G079 Cub C1	Primary Backup
2 ~~1~~W0056A Cub C2	Primary Backup
2 ~~1~~0G080 Cub C3	Primary Backup

TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 232X2
2RY8000B Cub C4	Primary Backup
2RC8003C Cub D5	Primary Backup
2RC8003B Cub D4	Primary Backup
2RC8002A Cub G1	Primary Backup
2RC8002B Cub G2	Primary Backup
2RC8002C Cub G3	Primary Backup
2RC8002D Cub G4	Primary Backup
	MCC 231X2A
2SI8808D Cub A2	Primary
MCC 231X2 Cub B2	Backup
2SI8808A Cub A3	Primary
MCC 231X2 Cub B2	Backup
	MCC 231X2
2RC8001A Cub G1	Primary Backup

TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 231X2
2RC8001B Cub G2	Primary Backup
2RC8001C Cub G3	Primary Backup
2RC8001D Cub G4	Primary Backup
2RH8701A Cub B1	Primary Backup
2RH8702A Cub B4	Primary Backup
2LL42J Cub C1	Primary Backup
2VQ001A Cub C3	Primary Backup
2VQ002A Cub F1	Primary Backup
2RC8003D Cub C4	Primary Backup
2RC8003A Cub C5	Primary Backup
2OG057A Cub D1	Primary Backup
2CC9416 Cub D3	Primary Backup
2CC9438 Cub D4	Primary Backup
2OG081 Cub E2	Primary Backup

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TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
4. 480V Molded Case Ckt. Bkrs. (MCCB) (Continued)	
	MCC 2 133X6
2 1HC01G - Cub B2	Primary
Cub B1	Backup
2 1LL04E - Cub C2	Primary
Cub C1	Backup
2 1VP03CA	Primary
Cub A3	Backup
2 1VP03CD	Primary
Cub C4	Backup
	MCC 2 134X7
2 1LL05E - Cub B2	Primary
Cub B1	Backup
2 1VP03CB	Primary
Cub A3	Backup
2 1VP03CC	Primary
Cub B4	Backup
	MCC 2 131X2B
2 1WO056B	Primary
Cub A4	Backup
2 1RY8000A	Primary
Cub A5	Backup

TABLE 3.8-1b (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

(Unit 2)

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE
5. 260 VAC RCD Power (53 rods, 5 panels)	
Stationary Gripper Coils (all panels)	Primary Backup
Lift Coils (all panels)	Primary Backup
Movable Gripper Coils (all panels)	Primary Backup

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection devices, integral with the motor starter of each valve listed in Table 3.8-2a for Unit 1 (Table 3.8-2b for Unit 2) shall be OPERABLE.

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

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.8.4.2 The above required thermal overload protection devices shall be demonstrated OPERABLE at least once per 18 months by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of:

a. All thermal overload devices, such that each device is calibrated at least once per 6 years, and

b. All thermal overload devices such that each thermal overload is calibrated and each valve is cycled through at least one complete cycle of full travel with the motor-operator when the thermal overload is OPERABLE, at least once per 6 years.

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TABLE 3.8-2 a

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 1

VALVE NUMBER	FUNCTION
00G059	Unit 1 Suct Isol Vlv H_2 Recomb
00G060	Unit 1 Discharge Isol Vlv H_2 Recombiner
00G061	Unit Discharge Xtie for H_2 Recombiner
00G062	Unit Xtie on Discharge of H_2 Recombiner
00G063	Unit Suction Xtie for H_2 Recombiner
00G064	Unit Suction Xtie for H_2 Recombiners
00G065	OB H_2 Analyzer Inlet Isol Vlv
00G066	OB H_2 Recomb Disch Isol Vlv
10G057A	OA H_2 Recomb Disch. Isol. Valve
10G079	H_2 Recomb Disch. Cnmt. Isol. Valve
10G080	H_2 Recomb Suct. Cnmt. Isol. Valve
10G081	H_2 Recomb Suction Cnmt. Isol. Valve
10G082	OA H_2 Recomb Disch Cnmt Isol Vlv
10G083	OA H_2 Recomb Disch Cnmt Isol Vlv
10G084	OA H_2 Recomb Cnmt Outlet Isol Vlv
10G085	H_2 Recomb Cnmt Outlet Isol Vlv
1AF006A	1A AF Pp SX Suct Isol Vlv
1AF006B	1B AF Pp SX Suct Dwst Isol Vlv
1AF013A	AF Mtr Drv Pmp Disch Hdr Dwst Isol Vlv
1AF013B	AF Mtr Drv Pmp Dsch Hdr Dwst Isol Vlv
1AF013C	AF Mtr Drv Pp Disch Hdr Dwst Isol Vlv
1AF013D	AF Mtr Drv Pp Disch Hdr Dwst Isol Vlv
1AF013E	AF Dsl Drv Pm Dsch Hdr Dwst Isol Vlv
1AF013F	AF Dsl Drv Pp Dsch Hdr Dwst Isol Vlv
1AF013G	AF Dsl Drv Pp Dsch Hdr Dwst Isol Vlv
1AF013H	AF Dsl Drv Pp Dsch Hdr Dwst Isol Vlv
1AF017A	1A AF Pp SX Suct Upst Isol Vlv
1AF017B	1B AF Pp SX Suct Upst Isol Vlv
1CC685	RCP Thermal Barrier Outlet Hdr Cnmt Isol Vlv
1CC9412A	CC to RH HX 1A Isol Vlv
1CC9412B	CC to RH HX 1B Isol Vlv
1CC9413A	RCP CC Supply Dwst CNMT Isol
1CC9413B	RCPs CC Supply Upst CNMT Isol
1CC9414	CC Water from RCPs Isol. Valve
1CC9415	Unit 1 Serv. Loop Isol Vlv
1CC9416	CC Wtr from RCPS Isol. Valve
1CC9438	CC Wtr from RC Pumps Thermal Bar Isol. Valve
1CC9473A	Disch Hdr X-tie Isol Vlv
1CC9473B	Disch Hdr X-tie Isol Vlv

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TABLE 3.8-2a (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 1 (Continued)

VALVE NUMBER	FUNCTION
1CS001A	1A CS Pp Suct from RWST
1CS001B	1B CS Pp Suction from RWST
1CS007A	CS Pp 1A Disch Line Dwst Isol Vlv
1CS007B	CS Pp 1B Disch Line Downstream Isol Vlv
1CS009A	1A Pump Suction from 1A Recirc Sump
1CS009B	1B CS Cont Recirc Sump B Suct Isol Vlv to CS
1CS019A	CS Eductor 1A Suction Conn Isol Vlv
1CS019B	CS Eductor 1B Suction Conn Isol Vlv
1CV112B	MOV VCT Outlet Upstm Isol VCT Vlv
1CV112C	MOV VCT Outlet Dwstm Isol VCT Vlv
1CV112D	MOV RWST to Chg Pp Suct Hdr
1CV112E	MOV RWST to Chg Pp Suct Hdr
1CV8100	MOV RCP Seal Leakoff Hdr Isol
1CV8104	MOV Emerg Boration Vlv
1CV8105	MOV Chrg Pps Disch Hdr Isol Vlv
1CV8106	MOV Chrg Pps Disch Hdr Isol Vlv
1CV8110	MOV A & B Chg. pp Recirc Downstream Isol
1CV8111	MOV A & B Chg Pp Recirc Upstream Isol
1CV8112	RC Pump Seal Water Return Isol. Valve
1CV8355A	MOV RCP 1A Seal Inj Inlet to containment Isol
1CV8355B	MOV RCP 1B Seal Inj Inlet Isol
1CV8355C	MOV RCP 1C Seal Inj Isol
1CV8355D	MOV RCP 1D Seal Inj Isol
× 1CV8804A	MOV RHR Sys X-Tie Vlv to Chrgng Pump Suction Hdr A/B.
× 1RH610	RH PP 1RH01PA Recirc, Line Isol.
1RH611	RH PP 1RH01PB Recirc, Line Isol.
1RH8701A	RC Loop 1A to RHR Pump Isol. Valve
1RH8702A	RC Loop 1C to RHR Pump Isol. Valve
1RH8701B	RC Loop 1A to RHR Pump Isol. Valve
1RH8702B	RC Loop 1C to RHR Pump Isol. Valve
1RH8716A	RH HX 1RH02AA Dwnstrm Isol Vlv
1RH8716B	RH HX 1RH02AB Dwnstrm Isol Valve
1RY8000A	Prz. Relief Isol. Valve 1A
1RY8000B	Prz. Relief Isol. Valve 1B
1SI8801A	SI Charging Pump Disch Isol Vlv
1SI8801B	SI Charging Pump Disch Isol Vlv
1SI8802A	SI PP 1A Disch Line Dwst Cont Isol Vlv
1SI8802B	SI PP 1B Disch Line Dwst Isol Vlv

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TABLE 3.8-2a (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 1 (Continued)

VALVE NUMBER	FUNCTION
1SI8804B	SI Pump 1B Suct X-tie from RHR HX
1SI8806	SI Pumps Upstream Suction Isol
1SI8807A	SI to Chg PP Suction Crosstie Isol Vlv
1SI8807B	SI to Chg PP Suction Crosstie Isol Vlv
1SI8808A	Accum. 1A Disch. Isol. Valve
1SI8808B	Accum. 1B Disch. Isol. Valve
1SI8808C	Accum. 1C Disch. Isol. Valve
1SI8808D	Accum. 1D Disch. Isol. Valve
1SI8809A	SI RX HX 1A Dsch Line Dwst Isol Vlv
1SI8809B	SI RX HX 1B Dsch Line Dwst Isol Vlv
1SI8811A	SI Cnmt Sump A Outlet Isol Vlv
1SI8811B	SI Cnmt Sump B Outlet Isol Vlv
1SI8812A	SI Rwst to RH Pp 1A Outlet Isol Vlv
1SI8812B	SI Rwst to RH Pp 1B Outlet Isol Vlv
1SI8813	SI Pumps 1A-1B Recirc Line Dwst Isol
1SI8814	SI Pump 1A Recirc Line Isol Vlv
1SI8835	SI Pumps X-tie Disch Isol Vlv
1SI8840	SI RHR HX Disch Line Upstrm Cont Pen Isl Vlv
1SI8821A	SI PP 1A Disch Line X-tie Isol Vlv
1SI8821B	SI Pump 1B Disch Line X-tie Isol Vlv
1SI8920	SI Pump 1B Recirc Line Isol Vlv
1SI8923A	SI PP 1A Suction Isol Vlv
1SI8923B	SI Pump 1B Suct Isol Valve
1SI8924	SI Pump 1A Suction X-tie Dwnstrm Isol Vlv
1SX016B	RCFC B&D Sx Supply MOV
1SX016A	RCFC A&C SX Supply MOV
1SX027A	RCFC A&C Return
1SX027B	RCFC B&D SX Return MOV
0SX007	CC HX Outlet Vlv
0SX063A	SX to Cont Rm Refrig Cdsr 0A
0SX063B	SX to Cont Rm Refrig Cdsr 0B
0SX146	CC Hx "0" return Vlv to Unit 1 MDCT
0SX157A	SX M/U Pp 0A Supply Fill to MDCT
0SX157B	SX M/U Pp 0B Supply to MDCT 0B MOV
0SX158A	SX M/U Pp 0A Supply Fill to MDCT MOV
0SX158B	SX M/U Pp 0B Supply to MDCT 0B MOV
0SX162A	MDCT 0A Bypass to basin MOV
0SX162B	MDCT 0B Bypass to basin MOV

TABLE 3.8-2 (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 1 (Continued)

VALVE NUMBER	FUNCTION
~~0SX162A~~	~~MDCT 0A Bypass to Basin MOV~~
~~0SX162B~~	~~MDCT 0B Bypass to Basin MOV~~
0SX163A	MDCT 0A Riser Isol Vlv MOV
0SX163B	MDCT 0A Riser Isol Vlv MOV
~~0SX163C~~	~~MDCT 0A Riser Isol Vlv MOV~~
~~0SX163D~~	~~MDCT 0A Riser Isol Vlv MOV~~
0SX163E	MDCT 0B Riser Isol Vlv MOV
0SX163F	MDCT 0B Riser Isol Vlv MOV
~~0SX163G~~	~~MDCT 0B Riser Isol Vlv MOV~~
~~0SX163H~~	~~MDCT 0B Riser Isol Vlv MOV~~
1SX001A	1A SX Pp Suct Vlv MOV
1SX001B	1B SX Pp Suct Vlv MOV
1SX004	U-1 SX Supply to U-1 CCW HX MOV
1SX005	1B SX Pp Supply to 0 CCW HX MOV
1SX007	CC HX Outlet Vlv
1SX010	U-1 Trn A return Vlv AB
1SX011	Trn A Trn B Unit 1 return X-tie Vlv AB
1SX033	1A SX Pp Disch X-tie MOV
1SX034	1B SX Pp Disch X-tie MOV
1SX136	Unit 1 Trn B return Vlv AB
1WO006A	Chilled wtr coils 1A & 1C Supply Isol vlv
1WO006B	Chilled wtr coils 1B & 1D Supply Isol vlv
1WO020A	Chilled wtr coils 1A & 1C Return Isol vlv
1WO020B	Chilled wtr coils 1B & 1D Return Isol vlv
1WO056A	Chilled Water Cnmt. Isol. Valve
1WO056B	Chilled Water Cnmt. Isol. Valve

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TABLE 3.8-2b

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 2

VALVE NUMBER	FUNCTION
00G059	Unit 1 Suct Isol Vlv H_2 Recomb
00G060	Unit 1 Discharge Isol Vlv H_2 Recombiner
00G061	Unit Discharge Xtie for H_2 Recombiner
00G062	Unit Xtie on Discharge of H_2 Recombiner
00G063	Unit Suction Xtie for H_2 Recombiner
00G064	Unit Suction Xtie for H_2 Recombiners
00G065	0B H_2 Analyzer Inlet Isol Vlv
00G066	0B H_2 Recomb Disch Isol Vlv
2 1OG057A	0B ~~2A~~ H_2 Recomb Disch. Isol. Valve
1OG079	H_2 Recomb Disch. Cnmt. Isol. Valve
1OG080	H_2 Recomb Suct. Cnmt. Isol. Valve
1OG081	H_2 Recomb Suction Cnmt. Isol. Valve
1OG082	0B ~~2A~~ H_2 Recomb Disch Cnmt Isol Vlv
1OG083	0B ~~2A~~ H_2 Recomb Disch Cnmt Isol Vlv
1OG084	0B ~~2A~~ H_2 Recomb Cnmt Outlet Isol Vlv
1OG085	H_2 Recomb Cnmt Outlet Isol Vlv
1AF006A	2 1A AF Pp SX Suct Isol Vlv
1AF006B	2 1B AF Pp SX Suct Dwst Isol Vlv
1AF013A	AF Mtr Drv Pmp Disch Hdr Dwst Isol Vlv
1AF013B	AF Mtr Drv Pmp Dscn Hdr Dwst Isol Vlv
1AF013C	AF Mtr Drv Pp Disch Hdr Dwst Isol Vlv
1AF013D	AF Mtr Drv Pp Disch Hdr Dwst Isol Vlv
1AF013E	AF Dsl Drv Pm Dscn Hdr Dwst Isol Vlv
1AF013F	AF Dsl Drv Pp Dscn Hdr Dwst Isol Vlv
1AF013G	AF Dsl Drv Pp Dscn Hdr Dwst Isol Vlv
1AF013H	AF Dsl Drv Pp Dscn Hdr Dwst Isol Vlv
1AF017A	2 1A AF Pp SX Suct Upst Isol Vlv
1AF017B	2 1B AF Pp SX Suct Upst Isol Vlv
1CC685	RCP Thermal Barrier Outlet Hdr Cnmt Isol Vlv
1CC9412A	CC to RH HX 2 1A Isol Vlv
1CC9412B	CC to RH HX 2 1B Isol Vlv
1CC9413A	RCP CC Supply Dwst CNMT Isol
1CC9413B	RCPs CC Supply Upst CNMT Isol
1CC9414	CC Water from RCPs Isol. Valve
1CC9415	Unit 1 2 Serv. Loop Isol Vlv
1CC9416	CC Wtr from RCPS Isol. Valve
1CC9438	CC Wtr from RC Pumps Thermal Bar Isol. Valve
1CC9473A	Disch Hdr X-tie Isol Vlv
1CC9473B	Disch Hdr X-tie Isol Vlv

TABLE 3.8-2b (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 2 (Continued)

VALVE NUMBER	FUNCTION
2 1CS001A	2 1A CS Pp Suct from RWST
1CS001B	2 1B CS Pp Suction from RWST
1CS007A	CS Pp 2 1A Disch Line Dwst Isol Vlv
1CS007B	CS Pp 2 1B Disch Line Downstream Isol Vlv
1CS009A	2 1A Pump Suction from 1A Recirc Sump
1CS009B	2 1B CS Cont Recirc Sump B Suct Isol Vlv to CS
1CS019A	CS Eductor 2 1A Suction Conn Isol Vlv
1CS019B	CS Eductor 2 1B Suction Conn Isol Vlv
1CV112B	MOV VCT Outlet Upstm Isol VCT Vlv
1CV112C	MOV VCT Outlet Dwstm Isol VCT Vlv
1CV112D	MOV RWST to Chg Pp Suct Hdr
1CV112E	MOV RWST to Chg Pp Suct Hdr
1CV8100	MOV RCP Seal Leakoff Hdr Isol
1CV8104	MOV Emerg Boration Vlv
1CV8105	MOV Chrg Pps Disch Hdr Isol Vlv
1CV8106	MOV Chrg Pps Disch Hdr Isol Vlv
1CV8110	MOV A & B Chg. Pp Recirc Downstream Isol *
1CV8111	MOV A & B Chg Pp Recirc Upstream Isol
1CV8112	RC Pump Seal Water Return Isol. Valve
1CV8355A	MOV RCP 2 1A Seal Inj Inlet to containment Isol
1CV8355B	MOV RCP 2 1B Seal Inj Inlet Isol
1CV8355C	MOV RCP 2 1C Seal Inj Isol
1CV8355D	MOV RCP 2 1D Seal Inj Isol
1CV8804A	MOV RHR Sys X-Tie Vlv to Chrgng Pump Suction Hdr A/B.
1RH610	RH PP 1RH01PA Recirc, Line Isol.
1RH611	RH PP 1RH01PB Recirc, Line Isol.
1RH8701A	RC Loop 2 1A to RHR Pump Isol. Valve
1RH8702A	RC Loop 2 1C to RHR Pump Isol. Valve
1RH8701B	RC Loop 2 1A to RHR Pump Isol. Valve
1RH8702B	RC Loop 2 1C to RHR Pump Isol. Valve
1RH8716A	RH HX 2 1RH02AA Dwnstrm Isol Vlv
1RH8716B	RH HX 2 1RH02AB Dwnstrm Isol Valve
1RY8000A	Prz. Relief Isol. Valve 2 1A
1RY8000B	Prz. Relief Isol. Valve 2 1B
1SI8801A	SI Charging Pump Disch Isol Vlv
1SI8801B	SI Charging Pump Disch Isol Vlv
1SI8802A	SI Pp 2 1A Disch Line Dwst Cont Isol Vlv
1SI8802B	SI Pp 2 1B Disch Line Dwst Isol Vlv

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TABLE 3.8-2b (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 2 (Continued)

VALVE NUMBER	FUNCTION
2 1SI8804B	SI Pump 1B Suct X-tie from RHR HX
1SI8806	SI Pumps Upstream Suction Isol
1SI8807A	SI to Chg PP Suction Crosstie Isol Vlv
1SI8807B	SI to Chg PP Suction Crosstie Isol Vlv
1SI8808A	Accum. 1A Disch. Isol. Valve
1SI8808B	Accum. 1B Disch. Isol. Valve
1SI8808C	Accum. 1C Disch. Isol. Valve
1SI8808D	Accum. 1D Disch. Isol. Valve
1SI8809A	SI RX HX 1A Dsch Line Dwst Isol Vlv
1SI8809B	SI RX HX 1B Dsch Line Dwst Isol Vlv
1SI8811A	SI Cnmt Sump A Outlet Isol Vlv
1SI8811B	SI Cnmt Sump B Outlet Isol Vlv
1SI8812A	SI Rwst to RH Pp 1A Outlet Isol Vlv
1SI8812B	SI Rwst to RH Pp 1B Outlet Isol Vlv
1SI8813	SI Pumps 1A-1B Recirc Line Dwst Isol
1SI8814	SI Pump 1A Recirc Line Isol Vlv
1SI8835	SI Pumps X-tie Disch Isol Vlv
1SI8840	SI RHR HX Disch Line Upstrm Cont Pen Isl Vlv
1SI8821A	SI PP 1A Disch Line X-tie Isol Vlv
1SI8821B	SI Pump 1B Disch Line X-tie Isol Vlv
1SI8920	SI Pump 1B Recirc Line Isol Vlv
1SI8923A	SI PP 1A Suction Isol Vlv
1SI8923B	SI Pump 1B Suct Isol Valve
1SI8924	SI Pump 1A Suction X-tie Dwnstrm Isol Vlv
1SX016B	RCFC B&D SX Supply MOV
1SX016A	RCFC A&C SX Supply MOV
1SX027A	RCFC A&C ~~Return~~ SX Return MOV
1SX027B	RCFC B&D SX Return MOV
~~0SX007~~	~~CC HX Outlet Vlv~~
~~0SX063A~~	~~SX to Cont Rm Refrig Cdsr 0A~~
~~0SX063B~~	~~SX to Cont Rm Refrig Cdsr 0B~~
~~0SX146~~	~~CC Hx "0" return Vlv to Unit 1 MDCT~~
~~0SX157A~~	~~SX M/U Pp 0A Supply Fill to MDCT~~
~~0SX157B~~	~~SX M/U Pp 0B Supply to MDCT 0B MOV~~
~~0SX158A~~	~~SX M/U Pp 0A Supply Fill to MDCT MOV~~
~~0SX158B~~	~~SX M/U Pp 0B Supply to MDCT 0B MOV~~
~~0SX162A~~	~~MDCT 0A Bypass to basin MOV~~
~~0SX162B~~	~~MDCT 0B Bypass to basin MOV~~
0SX147	CC Hx "2A" return VLV to UNIT 2 MDCT

TABLE 3.8-2b (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

UNIT 2 (Continued)

VALVE NUMBER	FUNCTION
0SX162C	MDCT 0A Bypass to basin MOV
0SX162D	MDCT 0B Bypass to basin MOV
~~0SX163A~~	~~MDCT 0A Riser Isol Vlv MOV~~
~~0SX163B~~	~~MDCT 0A Riser Isol Vlv MOV~~
0SX163C	MDCT 0A Riser Isol Vlv MOV
0SX163D	MDCT 0A Riser Isol Vlv MOV
~~0SX163E~~	~~MDCT 0B Riser Isol Vlv MOV~~
~~0SX163F~~	~~MDCT 0B Riser Isol Vlv MOV~~
0SX163G	MDCT 0B Riser Isol Vlv MOV
0SX163H	MDCT 0B Riser Isol Vlv MOV
1SX001A	2A SX Pp Suct Vlv MOV
1SX001B	2B SX Pp Suct Vlv MOV
1SX004	U-2 SX Supply to U-2 CCW HX MOV
1SX005	2B SX Pp Supply to 0 CCW HX MOV
1SX007	CC HX Outlet Vlv
1SX010	U-2 Trn A return Vlv AB
1SX011	Trn A Trn B Unit 2 return X-tie Vlv AB
1SX033	2A SX Pp Disch X-tie MOV
1SX034	2B SX Pp Disch X-tie MOV
1SX136	Unit 2 Trn B return Vlv AB
1WO006A	Chilled wtr coils 2A & 2C Supply Isol vlv
1WO006B	Chilled wtr coils 2B & 2D Supply Isol vlv
1WO020A	Chilled wtr coils 2A & 2C Return Isol vlv
1WO020B	Chilled wtr coils 2B & 2D Return Isol vlv
1WO056A	Chilled Water Cnmt. Isol. Valve
1WO056B	Chilled Water Cnmt. Isol. Valve
0SX007	CC HX Outlet Vlv
0SX063A	SX to Cont Rm Refrig Cdsr 0A
0SX063B	SX to Cont Rm Refrig Cdsr 0B
[redacted]	
0SX157A	SX M/U Pp 0A Supply Fill to MDCT
0SX157B	SX M/U Pp 0B Supply to MDCT 0B MOV
0SX158A	SX M/U Pp 0A Supply Fill to MDCT MOV
0SX158B	SX M/U Pp 0B Supply to MDCT 0B MOV

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3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

a. A K_{eff} of 0.95 or less, or

b. A boron concentration of greater than or equal to 2000 ppm.

APPLICABILITY: MODE 6*.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2000 ppm, whichever is the more restrictive.

SURVEILLANCE REQUIREMENTS

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

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full-length control rod in excess of 57 steps (approximately 3 feet) from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 Valves 1CV111B, 1CV8428, 1CV8441, 1CV8435, and 1CV8439 shall be verified closed and secured in position by mechanical stops or by removal of air or electrical power at least once per 31 days. x

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

SPECIAL TEST EXCEPTIONS

3/4.10.4 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.4 The limitations of the following requirements may be suspended:

a. Specification 3.4.1.1 - During the performance of startup and PHYSICS TESTS in MODE 1 or 2 provided:

1) The THERMAL POWER does not exceed the P-7 Interlock Setpoint, and

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

b. Specification 3.4.1.2 - During the performance of hot rod drop time measurements in MODE 3 provided at least two reactor coolant loops as listed in Specification 3.4.1.2 are OPERABLE..

APPLICABILITY: During operation below the P-7 Interlock Setpoint or performance of hot rod drop time measurements.

ACTION:

a. With the THERMAL POWER greater than the P-7 Interlock Setpoint during the performance of startup and PHYSICS TESTS, immediately open the Reactor trip breakers.

b. With less than the above required reactor coolant loops OPERABLE during performance of hot rod drop time measurements, immediately open the reactor trip breakers and comply with the provisions of the ACTION statements of Specification 3.4.1.2.

SURVEILLANCE REQUIREMENTS

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

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

4.10.4.3 At least the above required reactor coolant loops shall be determined OPERABLE within 4 hours prior to initiation of the hot rod drop time measurements and at least once per 4 hours during the hot rod drop time measurements by verifying correct breaker alignments and indicated power availability and by verifying secondary side narrow range water level to be greater than or equal to 41%, for Unit 1 (18% for Unit 2).

TABLE 4.11-1 (Continued)

TABLE NOTATIONS (Continued)

(3) The principal gamma emitters for which the LLD specification applies include the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Semiannual Radioactive Effluent Release Report pursuant to Specification 6.9.1.7 in the format outlined in Regulatory Guide 1.21, Appendix B, Revision 1, June 1974.

(4) A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.

(5) A continuous release is the discharge of liquid wastes of a nondiscrete volume, e.g., from a volume of a system that has an input flow during the continuous release.

(6) To be representative of the quantities and concentrations of radioactive materials in liquid effluents, samples shall be collected continuously in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.

(7) Not required unless the Essential Service Water RCFC Outlet Radiation Monitor (1RE-PR002) and (1RE-PR003) indicates measured levels greater than 1 x 10^{-6} µCi/ml above background at any time during the week.

3.0.5 This specification delineates the applicability of each specification to Unit 1 and Unit 2 operation.

APPLICABILITY

BASES

The intent of this provision is to ensure that facility operation is not initiated with either required equipment or systems inoperable or other specified limits being exceeded.

Exceptions to this provision have been provided for a limited number of specifications when STARTUP with inoperable equipment would not affect plant safety. These exceptions are stated in the ACTION statements of the appropriate specifications.

4.0.1 This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operation are met and will be performed during the OPERATIONAL MODES or other conditions for which the Limiting Conditions for Operation are applicable. Provisions for additional surveillance activities to be performed without regard to the applicable OPERATIONAL MODES or other conditions are provided in the individual Surveillance Requirements. Surveillance Requirements for Special Test Exceptions need only be performed when the Special Test Exception is being utilized as an exception to an individual specification.

4.0.2 The provisions of this specification provide allowable tolerances for performing surveillance activities beyond those specified in the nominal surveillance interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a surveillance frequency does not negate this allowable tolerance value and permits the performance of more frequent surveillance activities.

The tolerance values, taken either individually or consecutively over three test intervals, are sufficiently restrictive to ensure that the reliability associated with the surveillance activity is not significantly degraded beyond that obtained from the nominal specified interval.

4.0.3 The provisions of this specification set forth the criteria for determination of compliance with the OPERABILITY requirements of the Limiting Conditions for Operation. Under these criteria, equipment, systems, or components are assumed to be OPERABLE if the associated surveillance activities have been satisfactorily performed within the specified time interval. Nothing in this provision is to be construed as defining equipment, systems, or components OPERABLE, when such items are found or known to be inoperable although still meeting the Surveillance Requirements. Items may be determined inoperable during use, during surveillance tests, or in accordance with this specification. Therefore, ACTION statements are entered when the Surveillance Requirements should have been performed rather than at the time it is discovered that the tests were not performed.

4.0.4 This specification ensures that the surveillance activities associated with a Limiting Condition for Operation have been performed within the specified time interval prior to entry into an OPERATIONAL MODE or other applicable condition. The intent of this provision is to ensure that surveillance activities have been satisfactorily demonstrated on a current basis as required to meet the OPERABILITY requirements of the Limiting Condition for Operation.

APPLICABILITY

BASES

Under the terms of this specification, for example, during initial plant STARTUP or following extended plant outages, the applicable surveillance activities must be performed within the stated surveillance interval prior to placing or returning the system or equipment into OPERABLE status.

4.0.5 This specification ensures that inservice inspection of ASME Code Class 1, 2 and 3 components and inservice testing of ASME Code Class 1, 2 and 3 pumps and valves will be performed in accordance with a periodically updated version of Section XI of the ASME Boiler and Pressure Vessel Code and Addenda as required by 10 CFR 50.55a. Relief from any of the above requirements has been provided in writing by the Commission and is not a part of these Technical Specifications.

This specification includes a clarification of the frequencies for performing the inservice inspection and testing activities required by Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. This clarification is provided to ensure consistency in surveillance intervals throughout these Technical Specifications and to remove any ambiguities relative to the frequencies for performing the required inservice inspection and testing activities.

Under the terms of this specification, the more restrictive requirements of the Technical Specifications take precedence over the ASME Boiler and Pressure Vessel Code and applicable Addenda. For example, the requirements of Specification 4.0.4 to perform surveillance activities prior to entry into an OPERATIONAL MODE or other specified applicability condition takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows pumps to be tested up to 1 week after return to normal operation. And for example, the Technical Specification definition of OPERABLE does not grant a grace period before a device that is not capable of performing its specified function is declared inoperable and takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows a valve to be incapable of performing its specified function for up to 24 hours before being declared inoperable.

4.0.6 This specification delineates the applicability of the surveillance activities to Unit 1 and Unit 2 operation(s).

PRESSURE/TEMPERATURE LIMITS (Continued)

Heatup and cooldown limit curves are calculated using the most limiting value of the nil-ductility reference temperature, RT_{NDT}, at the end of 32 effective full power years for Unit 1 (16 effective full power years for Unit 2) of service life. The 32 EFPY for Unit 1 (16 EFPY for Unit 2) service life period is chosen such that the limiting RT_{NDT} at the 1/4T location in the core region is greater than the RT_{NDT} of the limiting unirradiated material. The selection of such a limiting RT_{NDT} assures that all components in the Reactor Coolant System will be operated conservatively in accordance with applicable Code requirements.

The reactor vessel materials have been tested to determine their initial RT_{NDT}; the results of these tests are shown in Table B 3/4.4-1. Reactor operation and resultant fast neutron (E greater than 1 MeV) irradiation can cause an increase in the RT_{NDT}. Therefore, an adjusted reference temperature, based upon the fluence, copper content and phosphorus content of the material in question, can be predicted using Figure B 3/4.4-1 and the largest value of ΔRT_{NDT} computed by either Regulatory Guide 1.99, Revision 1, "Effects of Residual Elements on Predicted Radiation Damage to Reactor Vessel Materials" or the Westinghouse Copper Trend Curves shown in Figure B 3/4.4-2. The heatup and cooldown limit curves of Figures 3.4-2 and 3.4-3 include predicted adjustments for this shift in RT_{NDT} at the end of 32 EFPY for Unit 1 (16 EFPY for Unit 2) as well as adjustments for possible errors in the pressure and temperature sensing instruments.

Values of ΔRT_{NDT} determined in this manner may be used until the results from the material surveillance program, evaluated according to ASTM E185, are available. Capsules will be removed in accordance with the requirements of ASTM E185-73 and 10 CFR Part 50, Appendix H. The surveillance specimen withdrawal schedule is shown in Table 4.4-5. The lead factor represents the relationship between the fast neutron flux density at the location of the capsule and the inner wall of the reactor vessel. Therefore, the results obtained from the surveillance specimens can be used to predict the future radiation damage to the reactor vessel material by using the lead factor and the withdrawal time of the capsule. The heatup and cooldown curves must be recalculated when the ΔRT_{NDT} determined from the surveillance capsule exceeds the calculated ΔRT_{NDT} for the equivalent capsule radiation exposure.

Allowable pressure-temperature relationships for various heatup and cooldown rates are calculated using methods derived from Appendix G in Section III of the ASME Boiler and Pressure Vessel Code as required by Appendix G to 10 CFR Part 50, and these methods are discussed in detail in WCAP-7924-A, "Basis for Heatup and Cooldown Limit Curves," April 1975.

TABLE B 3/4.4-1a

REACTOR VESSEL TOUGHNESS
(UNIT 1)

COMPONENT	Heat No.	Grade	Cu (%)	P (%)	T_{NDT} (°F)	50 ft-lb 35 mil Temp. (F°)	RT_{NDT} (°F)	Average Upper Shelf Energy: Normal to Principal Working Direction (ft-lb)	Average Upper Shelf Energy: Principal Working Direction (ft-lb)
Closure Head Dome	C3486-1	A533B CL1	.10	.016	-10	< 40	-10	151	---
Closure Head Ring	1V4566	A508 CL2	.11	.007	20	< 80	20	125	---
Closure Head Flange	124K358VA1	"	---	.011	60	<100	60	145	---
Vessel Flange	123J219VA1	"	---	.012	10	< 70	10	152	---
Inlet Nozzle	1V4684/3V1320	"	.12	.008	-10	< 40	-10	117	---
" "	1V4684/3V1320	"	.12	.008	-20	< 40	-20	116	---
" "	1V4695	"	.13	.007	-20	< 10	-20	116	---
" "	1V4695	"	.12	.006	-20	< 10	-20	119	---
Outlet Nozzle	1V4656	"	.11	.007	0	< 10	0	131	---
" "	1V4656	"	.11	.007	-20	< 10	-20	131	---
" "	2V2557	"	.11	.007	-20	< 10	-20	112	---
" "	2V2557	"	.11	.008	-10	50	-10	94	---
Nozzle Shell	123J218	"	.05	.010	20	< 70	20	138	184
Upper Shell	5P-5933	"	.05	.010	40	<100	40	139	156
Lower Shell	5P-5951	"	.04	.014	10	< 70	10	150	160
Bottom Head Ring	1V4672	"	---	.012	0	< 60	0	115	---
Bottom Head Dome	C2815-1	A533B CL1	.19	.009	-30	40	-20	118	---
Upper to Lower Shell Girth Weld	WF336	---	.024	.010	-30	30	-30	77*	---

*Normal to Principal Welding Direction

TABLE B 3/4.4-1b

REACTOR VESSEL TOUGHNESS
(UNIT 2)

Component	Heat No.	Grade	Cu (%)	P (%)	T_{NDT} (°F)	50 ft/lb 35 mil Temp. (°F)	RT_{NDT} (°F)	Average Upper Shelf Energy: Normal to Principal Working Direction (ft-lb)	Average Upper Shelf Energy: Principal Working Direction (ft-lb)
Closure Head Dome	C4375-2	A533 B, Cl. 1	.12	.013	40	<20	-40	114	---
Closure Head Ring	48C1300-1-1	A508 Cl. 3	.05	.007	-30	<30	-30	108	---
Closure Head Flange	2029-V-1	A508 Cl. 2	---	.011	0	<60	0	157	---
Vessel Flange	124L556VA1	A508 Cl. 2	---	.008	30	<90	30	129	---
Inlet Nozzle	51-2979	A508 Cl. 2	.07	.010	-10	<50	-10	130	---
Inlet Nozzle	51-2979	A508 Cl. 2	.07	.009	-20	<40	-20	121	---
Inlet Nozzle	42-5105	A508 Cl. 2	.07	.008	0	<60	0	122	---
Inlet Nozzle	42-5105	A508 Cl. 2	.07	.011	0	<60	0	121	---
Outlet Nozzle	11-5052	A508 Cl. 2	.09	.010	-10	<50	-10	108	---
Outlet Nozzle	11-5052	A508 Cl. 2	.08	.007	-10	<50	-10	121	---
Outlet Nozzle	4-2953	A508 Cl. 2	.09	.010	-20	<40	-20	133	---
Outlet Nozzle	4-2956	A508 Cl. 2	.09	.009	-10	<50	-10	121	---
Nozzle Shell	4P-6107	A508 Cl. 2	---	.014	10	<70	10	155	---
Upper Shell	49D329/ 49C297 1-1	A508 Cl. 3	.01	.007	-20	<40	-20	149	149
Lower Shell	49D330/ 49C298 1-1	A508 Cl. 3	.05	.008	-20	<40	-20	127	159
Bottom Head Ring	48D1566 1-1	A508 Cl. 3	.07	.007	-30	<30	-30	126	---
Bottom Head Dome	C3053-1	A533B, Cl. 1	.06	.004	-30	40	-20	121	---
Upper Shell to Lower Shell Girth Weld	WF447	SAW	.059	.009	10	<70	10	80	---
Weld HAZ	---	---	---	---	-60	<0	-60	143	---

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PRESSURE/TEMPERATURE LIMITS (Continued)

The notch in the cooldown curve of Figure 3.4-3 is due to the added constraint on the vessel closure flange given in Appendix G of 10 CFR 50. This constraint requires that, at pressures greater than 20% of the preservice system hydrostatic test pressure, the flange regions that are highly stressed by the bolt preload must exceed the RT_{NDT} of the material by at least 120°F. ~~In the case of Byron 1,~~ The flange RT_{NDT} + 120°F impinges on the cooldown curves and therefore the notch is required.

HEATUP

Three separate calculations are required to determine the limit curves for finite heatup rates. As is done in the cooldown analysis, allowable pressure-temperature relationships are developed for steady-state conditions as well as finite heatup rate conditions assuming the presence of a 1/4T defect at the inside of the vessel wall. The thermal gradients during heatup produce compressive stresses at the inside of the wall that alleviate the tensile stresses produced by internal pressure. The metal temperature at the crack tip lags the coolant temperature; therefore, the K_{IR} for the 1/4T crack during heatup is lower than the K_{IR} for the 1/4T crack during steady-state conditions at the same coolant temperature. During heatup, especially at the end of the transient, conditions may exist such that the effects of compressive thermal stresses and different K_{IR}'s for steady-state and finite heatup rates do not offset each other and the pressure-temperature curve based on steady-state conditions no longer represents a lower bound of all similar curves for finite heatup rates when the 1/4T flaw is considered. Therefore, both cases have to be analyzed in order to assure that at any coolant temperature the lower value of the allowable pressure calculated for steady-state and finite heatup rates is obtained.

The second portion of the heatup analysis concerns the calculation of pressure-temperature limitations for the case in which a 1/4T deep outside surface flaw is assumed. Unlike the situation at the vessel inside surface, the thermal gradients established at the outside surface during heatup produce stresses which are tensile in nature and thus tend to reinforce any pressure stresses present. These thermal stresses, of course, are dependent on both the rate of heatup and the time (or coolant temperature) along the heatup ramp. Furthermore, since the thermal stresses, at the outside are tensile and increase with increasing heatup rate, a lower bound curve cannot be defined. Rather, each heatup rate of interest must be analyzed on an individual basis.

Following the generation of pressure-temperature curves for both the steady-state and finite heatup rate situations, the final limit curves are produced as follows. A composite curve is constructed based on a point-by-point comparison of the steady-state and finite heatup rate data. At any given temperature, the allowable pressure is taken to be the lesser of the three values taken from the curves under consideration.

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*TABLE 6.2-1

MINIMUM SHIFT CREW COMPOSITION

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	MODES 1, 2, 3 & 4	MODES 5 & 6
SE	1	1
SF	1	None
RO	2	1
AO	2	1
SCRE	1	None

or, whenever a SCRE (SRO/STA) is not included in the shift crew composition, the minimum shift crew shall be as follows:

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	MODES 1, 2, 3 & 4	MODES 5 & 6
SE	1	1
SF	1	None
RO	2	1
AO	2	1
STA	1	None

SE - Shift Supervisor (Shift Engineer) with a Senior Operator license on Unit 1
SF - Shift Foreman with a Senior Operator license on Unit 1
RO - Individual with a Reactor Operator license on Unit 1
AO - Auxiliary Operator
SCRE - Station Control Room Engineer with a Senior Reactor Operator's License on Unit 1
STA - Shift Technical Advisor

The Shift Crew Composition may be one less than the minimum requirements of Table 6.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the Shift Crew Composition to within the minimum requirements of Table 6.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

During any absence of the Shift Supervisor from the control room while the Unit is in MODE 1, 2, 3 or 4, an individual with a valid Senior Operator license shall be designated to assume the control room command function. During any absence of the Shift Supervisor from the control room while the Unit is in MODE 5 or 6, an individual with a valid Operator license shall be designated to assume the control room command function.

* Table 6.2-1 will be replaced by Table 6.2-1a when Unit 2 receives an operating license.

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* TABLE 6.2-1a

MINIMUM SHIFT CREW COMPOSITION

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION		
	BOTH UNITS IN MODE 1, 2, 3, OR 4	BOTH UNITS IN MODE 5 OR 6 OR DEFUELED	ONE UNIT IN MODE 1, 2, 3 OR 4 AND ONE UNIT IN MODE 5 OR 6 OR DEFUELED
SE	1	1	1
SF	1	none[b]	1
RO	3[a]	2[a]	3[a]
AO	3[a]	3[a]	3[a]
STA OR SCRE	1	none	1

SE - Shift Supervisor (Shift Engineer) with a Senior Operator License
SF - Shift Foreman with a Senior Operator License
RO - Individual with an Operator License
AO - Auxiliary Operator
STA - Shift Technical Advisor
SCRE - Station Control Room Engineer with a Senior Operator License

The Shift Crew Composition may be one less than the minimum requirements of Table 6.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on duty shift crew members provided immediate action is taken to restore the Shift Crew Composition to within the minimum requirements of Table 6.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

During any absence of the Shift Supervisor from the control room while the unit is in MODE 1, 2, 3 or 4, an individual with a valid Senior Operator license shall be designated to assume the control room command function. During any absence of the Shift Supervisor from the control room while the unit is in MODE 5 or 6, an individual with a valid Senior Operator or Operator license shall be designated to assume the control room command function.

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a/ At least one of the required individuals must be assigned to the designated position for each unit.

b/ At least one licensed Senior Operator or licensed Senior Operator Limited to Fuel Handling must be present during Core Alterations on either unit, who has no other concurrent responsibilities.

* Table 6.2-1a will replace Table 6.2-1 when Unit 2 receives an operating license.