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July 26, 1984

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

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

Reference (a): B. J. Youngblood letter to D. L. Farrar
dated July 19, 1984

Dear Mr. Denton:

Reference (a) requested that the Commonwealth Edison Company provide additional information to allow completion of the NRC Staff's evaluation of the Byron Technical Specifications. The purpose of this letter is to provide our response to this request.

Commonwealth Edison has had numerous meetings with the NRC to respond to technical reviewers' questions on the Byron Technical Specifications. As a result of these interactions, many questions have been resolved by our formal submittal of page changes to the Byron Technical Specifications. Reference (a) contains the residual concerns of the Reactor Systems Branch and requests our response to thirteen questions. The Enclosure to this letter provides our response to each question.

Our review of these thirteen questions indicates that eight are generic in nature and question the structure of Revision 4 to the Standardized Technical Specifications which our Byron Technical Specifications are patterned after. Our responses address the Reference (a) concerns without imposing technical specifications in some cases, or by deferring our final response and possible technical specification changes until Westinghouse Owner's Group activities currently underway are completed.

Additionally, at the request of NRR, we are enclosing a complete package of our comments and suggestions to Section 3/4.8 of the Proof and Review version of the Byron Unit 1 Technical Specifications. These comments and suggestions, with a few exceptions, have been previously transmitted to the NRC in several packages. This complete section should aid NRR in their review. Recent discussions with NRR have also necessitated some changes to the previously transmitted comments in the area of D.C. Sources and Diesel Oil Surveillances. These changes have been discussed with your technical reviewers and have been included in this package.

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Your prompt review of the Enclosures to this letter is requested. Please direct any questions that you may have regarding this matter to this office.

One (1) signed original and fifteen copies of this letter and the Enclosures are provided for NRC review.

Very truly yours,

E. Douglas Swartz
Nuclear Licensing Administrator

cc: Byron Resident Inspector

Enclosures

9023N

QUESTION 1:

Relief Valves (Section 3.4.4, page 3/4 4-10)

It is the staff's understanding that your steam generator tube rupture analysis presented in Chapter 15 of your FSAR relied on the availability and operability of the pressurizer power operated relief valves (PORVs) and the steam generator atmospheric dump valves (ADVs) for depressurization and cooldown in order to limit offsite doses to within 10 CFR 100 guideline values. Similarly, your cooldown evaluation in FSAR Section 5.4.7 performed to show compliance with BTP RSB 5-1 relied on the availability and operability of the PORVs and ADVs to provide the necessary depressurization and cooldown functions. Your proposed technical specifications however, appear to be inconsistent with your FSAR assumptions in that they allow the PORV to be taken out of service for an indefinite period of time and, on the other hand, they do not contain an operability requirement for the steam generator ADVs. Please demonstrate how you comply with the requirements of 10 CFR 50.36 regarding how your technical specifications for the PORV were derived from the FSAR safety analyses. Specifically, we believe it is necessary to show that the steam generator tube rupture criteria and the RSB 5-1 criteria can be met assuming inoperable PORVs and ADVs consistent with your proposed technical specifications. Otherwise, you should demonstrate that your technical specification is consistent with the FSAR analyses.

RESPONSE:

The action statements for Technical Specification 3.4.4 have been changed to the following:

"ACTION:

a. With one or more PORV(s) inoperable because of excessive seat leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s); otherwise be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status or close the associated block valve and remove power from the block valve; restore the PORV to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With both PORV(s) inoperable due to causes other than excessive seat leakage, within 1 hour either restore each of the PORV(s) to OPERABLE status or close their associated block valve(s) and remove power from the block valve(s) and be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

d. With one or more block valve(s) inoperable, within 1 hour: 1) restore the block valve(s) to OPERABLE status, or close the block valve(s) and remove power from the block valve(s), or close the PORV and remove power from its associated solenoid valve; and 2) apply the ACTION of b or c above, as appropriate for the isolated PORV(s).

e. The provisions of Specification 3.0.4 are not applicable."

The above revised Action statement ensures that the pressurizer power operated relief valves are available. This revision has been submitted to the NRC.

Commonwealth Edison recognizes the need to address the steam generator power operated relief valves which are presently not addressed in either the Byron Technical Specifications or the Standard Technical Specifications. The Westinghouse Owners Group, of which Commonwealth Edison is a member, is currently reviewing the Steam Generator Tube Rupture analysis generically. At the conclusion of this review, Commonwealth Edison will evaluate the results and recommendations of the Owners Group, and will incorporate same where appropriate.

QUESTION 2:

Table 3.3-5, Engineered Safety Features Response Time (page 3/4 3-30)

The high steam generator level trip delay of 2 seconds to close feedwater system valves and trip the turbine in table 15.0-5 is not consistent with the values in T.S. table 3.3-5.

RESPONSE:

The high steam generator water level trip time delay of 2 seconds listed in Table 15.0-5 of the FSAR is the time interval from when the monitored parameter exceeds its actuation setpoint at the channel sensor until an actuation signal is provided to the equipment but does not include equipment operation time. This is the sensor time delay between detection and actuation of the appropriate response.

The steam generator water level-high-high turbine trip response time of 2.5 seconds listed in Table 3.3-5 of the Technical Specifications is the time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function. The response time includes the sensor time delay of 2 seconds (Table 15.0-5) and the 0.5 second time interval required for the equipment action to be completed.

QUESTION 3:

Table 3.3-3, Engineered Safety Features Actuation System Instrumentation (page 3/4 3-14)

The Technical Specifications do not require automatic safety injection in the event of a main steam line break outside containment below P-11 (1930 psig RCS pressure). Justify that a postulated steam line break at the end of core life, when the moderator density coefficient is highly negative, would be within the calculated FSAR results for operation below P-11.

RESPONSE:

Byron General Procedure (BGP) 100-5 Plant Shutdown and Cooldown requires the RCS to be borated to the cold shutdown concentration prior to reducing pressure in the RCS. This means that when the safety injection automatic initiation logic for both low pressurizer pressure and low steamline pressure are blocked at the P-11 setpoint, the RCS is already borated to the cold shutdown concentration. This precludes criticality in the event of a complete cooldown while SI is blocked.

QUESTION 4:

Plant Systems, Ma'n Steam Isolation Valves 3.7.1.5 (page 3/4 7-9)

The Technical Specifications do not require manual isolation capability for the Main Steam Isolation valves in mode 4 (below a RCS temperature of 350°F).

Justify that in the event of a steam generator tube rupture in mode 4 that the offsite dose consequences calculated in the FSAR would not be exceeded.

RESPONSE:

The Byron Technical Specifications are consistent with the Standard Technical Specifications which do not require manual isolation capability for the Main Steam Isolation valves in Mode 4.

Commonwealth Edison recognizes the need to address the steam generator tube rupture, mode 4 issue. The Westinghouse Owners Group, of which Commonwealth Edison is a member, is currently reviewing the Steam Generator Tube Rupture analysis generically. At the conclusion of this review, Commonwealth Edison will evaluate the results and recommendations of the Owners Group, and will incorporate same where appropriate.

QUESTION 5:

Reactor Coolant System, Pressurizer 3.4.3 (page 3/4 4-9)

The Technical Specifications limit the pressurizer level to less than 92% for operation in modes 1, 2 and 3 and impose no limits for operation below mode 3. Justify that the recommendations of Branch Technical Positions RSB 5-1 (cold shutdown) and RSB 5-2 (LTOP) can be met within the above limits in view of the following considerations.

a. A 450 ft.^{3} bubble is required to provide a ten minute warning to the operator before the Appendix G limits are reached for low temperature in the reactor system. (SER page 5-4, Q212.153)

b. A pressurizer vapor space corresponding to an indicated water level of 25% is required to permit boration to cold shutdown without letdown. (Q212.154 P.7)

RESPONSE 5a):

The scenario discussed in Q211.153 involves the failure of a d-c vital bus which results in the isolation of normal letdown and loss of one Pressurizer PORV. In addition, the failure of the second PORV is postulated to occur. This scenario results in the loss of cold overpressure protection through the Pressurizer PORVs with continued charging (120 gpm maximum assumed) to a potential overpressurization event.

There are several Technical Specifications which place limitations on plant operation such that the probability of this event occuring are minimized. For this discussion, only operation below Mode 3 (ie temperatures below 350°F) is considered.

1). Tech Spec 3.4.1.3 states that at least two loops, Reactor Coolant or RHR, shall be operable and one in operation in Mode 4. A RCP shall not be started with the RCS 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 the RCS cold leg temperature. This protects the RCS from overpressure transients such that the limits of Appendix G, 10 CFR Part 50 are not exceeded.

2). In Mode 5 with the RCS loops filled, Tech Spec 3.4.1.4.1 requires one RHR loop to be operable and in operation and either an additional RHR loop to be operable or the narrow range level of 2 steam generators to be greater than 41%. The restriction on not starting an RCP also applies. Having an RHR loop in operation allows the RHR suction relief valves to provide a means to mitigate an overpressure event.

3). In Mode 5 with the RCS loop not filled, two RHR loops shall be operable and at least one RHR loop shall be in operation. With the RCS loops not filled, the potential for an overpressure transient is greatly reduced and the RHR suction relief valves would provide an alternate means to mitigate an overpressure event.

4). Tech Spec 3.4.2.2 requires one pressurizer code safety valve to be operable in Modes 4 and 5. The relief capacity of a single safety valve is adequate to relieve any overpressure conditions which could occur during shutdown.

5). Tech Spec 3.4.9.3 requires the Overpressure Protection Systems to be operable in Modes 4, 5 and 6 with the reactor vessel head on. At least one of the following systems shall be operable (1) Two RHR suction relief valves or (2) Two PORVs or (3) the RCS depressurizer with an RCS vent greater than or equal to 2 square inches. The operability of one of these systems, ensures the RCS will be protected from pressure transients which could exceed the Appendix G limits when one or more RCS cold leg temperature is less than or equal to 350°F.

6). There is also a Tech Spec restriction that a maximum of one centrifugal charging pump shall be operable whenever the temperature of the RCS cold leg is less than or equal to 330°F.

This is further assurance that the potential for an overpressure condition will be minimized.

In addition to the Technical Specifications, the operating procedures have limitations which also support minimizing the potential for an overpressure event below 350°F. One of the first steps in the Plant Shutdown and Cooldown procedure BGP 100-5 is to verify operability of the Low Temp Overpressurization system per Tech Spec 3.4.9.3 surveillance requirements prior to moving from Mode 2 to Mode 3. Another step ensures the Pressurizer PORVs are placed in the Arm Low Temp mode <u>before</u> RCS temperature is decreased below 380°F thus the PORVs will <u>be in</u> operation.

Typically, the RHR system is in operation, or at a minimum, the RHR loop suction valves are open providing an open path from the RCS to the RHR suction relief valve, whenever RCS temperature is below 350°F and RCS pressure is below 350 psig. For this reason, an overpressure event resulting from the prescribed scenario is very unlikely. In addition, postulating the failure of 2 independent, separate and redundant systems such as the Pressurizer PORVs and RHR suction relief valves is highly unlikely. However the discussion will be extended to the infrequent case where the RHR system is isolated from the RCS and the cold overpressure protection system is required to be operable.

Before the cooldown is initiated, letdown flow is verified and then the Pressurizer level is raised to 60% to compensate for shrinkage during the cooldown. At a 60% level, a 720 cubic foot steam bubble will exist. Since the Pressurizer level will decrease with the cooldown, the bubble size will increase so the operator must manually makeup to maintain the pressurizer level. At this level, the operator will have more than a 15 minute warning before the Appendix G limits are reached for low temperature in the reactor system.

Since the pressurizer level is being maintained by manual operator action, when a loss of letdown is observed the charging will be reduced to the minimum which will provide the operator with more than a 15 minute response time and an effort will be made to re-establish either normal or excess letdown. If the charging flow can't be reduced, any operating RCPs can be tripped and the charging pump stopped to prevent an overpressure event. This will also provide the operator with more than a 15 minute response time since all makeup to the RCS will be stopped.

To summarize, in our judgement:

1). The postulated event is unlikely to occur because the d-c buses have a battery as an emergency power supply and should the d-c bus fail, it must be coupled with the additional failure of the second PORV for overpressurization.

2). In the unlikely event that the prescribed scenario did occur, RHR would normally be on line and capable of mitigating any potential overpressure resulting from one charging pump.

3). In the highly unlikely event that the scenario should occur when RHR is isolated from the RCS, the operator would have sufficient time to mitigate the event.

4). The Appendix G curves are excessively conservative for their intended purpose of assuring vessel integrity during cold condition.

Commonwealth Edison maintains that no further action is necessary to address this postulated event, and that existing plant design and operational techniques will result in successful event mitigation.

RESPONSE 5b):

Concerning the issue of having a pressurizer vapor space corresponding to an indicated water level of 25% to permit boration to cold shutdown without letdown in Modes 4 and 5 is not a valid concern. In the Plant Shutdown and Cooldown Procedure BGP 100-5, in the Precautions section it states that normally, the RCS will be borated to Cold Shutdown, xenon-free boron concentration before cooldown is initiated which is started in Mode 3 well before entering Mode 4. The cooldown can be initiated while boration is in progress if adequate Shutdown Margin is available from xenon for the duration of the boration operation. So if the unit is being placed in Modes 4, 5 or 6, the plant would be borated to Cold Shutdown or refueling conditions (Modes 5 and 6 respectively) while in Mode 3.

Also in the Limitations and Action section, there is a statement that the Shutdown Margin shall be verified upon reaching Hot Standby and once per 24 hours while in Modes 3, 4 or 5 per Tech Specs 3.1.1.1 and 3.1.1.2.

QUESTION 6:

Reactor Coolant System, Overpressure Protection Systems 3.4.9.3 (page 3/4 4-35)

The Technical Specifications provide for lockout of ECCS pumps below a RCS temperature of 380°F but do not provide for measures to prevent operation of reactor coolant pumps or accumulators at low reactor system temperatures. The staff's conclusion that Byron was adequately protected against low temperature overpressure events was based on the commitment that inadvertent RCP operation or accumulator injection at low RCS temperature would be prevented (SER page 5-4). Justify that the Appendix G limits will not be exceeded from inadvertent RCP or accumulator operation at low temperature.

RESPONSE:

The accumulator isolation valves are closed and power is removed in accordance with Byron General Procedure (BGP) 100-5 Plant Shutdown and Cooldown. The following step is in BGP 100-5.

"33. Accumulator lineup for RCS cooldown with RCS pressure between 800-1000 psig.

a. Return to service and energize accumulator to cold leg isolations, MOV-SI8808A, B, C and D.

b. Close accumulator to cold leg isolations, MOV-SI8808A, B, C and D.

c. Take accumulator to cold leg isolations, MOV-SI8808A, B, C and D out of service."

Concerning the Reactor Coolant Pump's, Technical Specifications 3.4.1.3 (##)pg. 3/4 4-3 and 3.4.1.4.1 (##)pg. 3/4 4-5, reads as follows.

"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 380° F unless the secondary water temperature of each steam generator is less than 50° F above each Reactor Coolant System cold leg temperature."

Byron Station recommends changing the "380°F" number to "350°F".

The restrictions on starting a Reactor Coolant Pump with one or more RCS cold legs less than or equal to 350° F are provided to prevent RCS pressure transients, caused by energy additions from the Secondary Coolant System, which could exceed the limits of Appendix G to 10CFR50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by restricting starting of the RCPs to when the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

The above recommended page changes were submitted to the NRC.

QUESTION 7:

Technical Specifications are not provided for surveillance of the RHR miniflow bypass valves which open at less than 500 gpm for RHR pump protection and close at greater than 1000 gpm to provide for maximum ECCS flow. Justify that the consequences of LOCA will remain within those documented in the FSAR in the absence of operability surveillance for these valves.

RESPONSE:

A Technical Specification Surveillance is not required for the RHR miniflow bypass valves RH610 and RH611.

For maximum ECCS flow, the worst case situation would be for the miniflow bypass valves to remain open, thus reducing ECCS flow. The FSAR analysis conservatively assumes a degraded RHR pump discharge curve with a shut off head of 120 psig (0 flow) and a maximum RHR flow of 3080 gpm at 20 psig.

Preoperational testing on the RHR pumps has shown that Pump A will deliver 4300 gpm at 150 psig head and Pump B will deliver 4200 gpm at 150 psig head. These data were taken with miniflow bypass valves closed. If the mini bypass valves were to remain open, the measured flow could be reduced by a maximum of 650 gpm. Thus the minimum flow delivered by either RHR pump with the mini bypass valves stuck open is 3550 gpm, which is well above the values required by the FSAR analysis.

For RHR pump protection, the worst case situation would be for the valve to go from the normally open position to closed, thus creating a potential situation of pump degradation by deadheading. This situation is prevented because the normal valve position is "open".

QUESTION 8:

Table 3.3-2, Reactor Trip System Instrumentation Response Times (page 3/4 3-7, 8)

Several of the response times listed in Table 3.3-5 are not verifiable by review of Chapter 15. Please provide references for those times not listed in Chapter 15. If specific actuated equipment is not taken credit for in any of the transient analyses, it is permissible to state that in lieu of a reference for the associated response time.

Specifically provide verification for the response times for those operations, other than reactor trip, for

a) containment pressure - high, high-2, high-3
b) pressurizer pressure - low
c) steam line pressure - low
d) RWST level - low 2, coincident with SI
e) undervoltage RCP Bus
f) division 1 ESF Bus undervoltage
g) loss of power
h) steam line pressure negative rate
i) phase "A" isolation

RESPONSE:

The following ESF response times were used in the FSAR analysis:

SIGNAL	TIME (SEC)
Containment Pressure - High - 1	
Containment Cooling Fans	40*
Pressurizer Pressure - Low	
Safety Injection (ECCS)	27*
Feedwater Isolation	7
Reactor Trip	2
Steam Line Pressure - Low	
Safety Injection (ECCS)	22/12
Feedwater Isolation	7
Steam Line Isolation	7
Containment Pressure - High - 3	
Containment Spray	45*
Steam Generator Water Level - High - High	
Turbine Trip	2.0#
Feedwater Isolation	7

<u>Steam Generator Water Level - Low - Low</u>

Motor-Driven Auxiliary Feedwater Pump	60
Diesel-Driven Auxiliary Feedwater Pump	60

* Assumes loss of offsite power
\# Does not include valve closure time of 0.5 seconds.

These values are either documented in the FSAR or in the supporting proprietary calculations maintained by Westinghouse. Table 3.3-5 of the Technical Specifications has been revised to reflect the above and submitted to the NRC.

QUESTION 9:

<u>Table 3.4-1, Reactor Coolant System Pressure Isolation Valves (page 3.4-21)</u>

The staff notes that the charging system check valves were recently removed from the list of valves for which leak surveillance will be performed. Justify that the low pressure portions of the charging system are adequately protected against full reactor system pressure in the event that all charging flow were lost and that a LOCA outside containment will not occur.

RESPONSE:

Previously, Commonwealth Edison submitted a page change request to the NRC which deleted check valves 1SI8900A, B, C and D and 1SI8815 from Table 3.4-1. This request for change is being withdrawn.

QUESTION 10:

Table 3.3-1, Reactor Trip Instrumentation (page 3/4 3-2)

For rod withdrawal accident at subcritical conditions, staff is under the impression that reactor trip is initiated by the power range neutron flux trip. However, the power range neutron flux trip needs only to be operable in modes 1 and 2 according to the Technical Specifications. Please explain this apparent discrepancy. If your explanation takes credit for either the intermediate range or source range trips, then the setpoint methodology will have to be amended to reflect this.

RESPONSE:

The Byron Technical Specifications are consistent with the Standard Technical Specifications which requires the Power Range Neutron Flux trip setpoint to be operable in Modes 1 and 2.

Commonwealth Edison recognizes the need to address the issue. The Westinghouse Owners Group, of which Commonwealth Edison is a member, is currently reviewing this issue generically. At the conclusion of this review, Commonwealth Edison will evaluate the results and recommendations of the Owners Group, and will incorporate same where appropriate.

QUESTION 11:

Reactor Coolant System Hot Shutdown 3.4.1.3 (page 3/4 4-3)

Technical Specification 3.4.1.3 permits operation in Mode 4 with one RHR loop in operation. Justify that the consequences of an inadvertent control rod withdrawal event with one RHR loop in operation in Mode 4 would be bounded by the FSAR analysis which assumes two reactor coolant pumps in operation in Mode 2. In your evaluation consider the effect of non uniform flow distribution through the core on minimum DNBR.

RESPONSE:

The Byron Technical Specifications are consistent with the Standard Technical Specifications which permits operation in Mode 4 with one RHR loop in operation.

Commonwealth Edison recognizes the need to address the issue. The Westinghouse Owners Group, of which Commonwealth Edison is a member, is currently reviewing this issue generically. At the conclusion of this review, Commonwealth Edison will evaluate the results and recommendations of the Owners Group, and will incorporate same where appropriate.

QUESTION 12:

Table 3.3-1, Reactor Trip Instrumentation

Item 19, the minimum channels operable for interlock P-10 for Mode 1 conflicts with FSAR Section 7.2.1.1.2. That is, when coming down in power it takes a 3 out of 4 P-10 channels to reinstate the intermediate range high neutron flux trip and the low power range neutron flux trip. Item 19 shows 2 out of 4. Please resolve this inconsistency.

RESPONSE:

Commonwealth Edison does not recognize any inconsistency because the logic is different when going up in power versus coming down in power. Two of the four power range channels above the setpoint will actuate P-10 allowing the Intermediate Range and Low Power Range neutron flux trips to be blocked. The Intermediate Range and Low Power Range reactor trips are reinstated when P-10 is de-actuated which requires 3 out of 4 nuclear power range channels to drop below the setpoint.

QUESTION 13:

Plant Systems, Turbine Cycle Valves, B 3/4.7.1.1 (page B3/4 7-1)

What is the basis for the equation that derives the reduced reactor trip setpoints whenever there are inoperable safety valves? Is there an analysis to support this equation?

RESPONSE:

The purpose of Specification 3/4.7.1.1 Turbine Cycle Safety Valves is to assure the Power Range Neutron Flux high setpoint is reduced if any steam generator safety valve becomes inoperable. The setpoints for 1, 2, and 3 inoperable safety valves are specified in Table 3.7-1. The reduced setpoint values, for 4 loop operation, are computed by the first equation appearing in Tech Spec basis B 3/4.7.1.1.

The equations appearing in the basis provide a linear relation between the Power Range Neutron Flux high setpoint and the relieving capacity of the operable safety valves in any one steam generator. It is noted that if safety valves become inoperable in any one steam generator, symmetric flow dictates that the heat transfer to all four steam generators be reduced uniformly. Each steam generator has 5 safety valves. Therefore, for each inoperable valve in a steam generator, the Power Range Neutron Flux high setpoint will be reduced by less than or equal to 20% of its nominal value (109%).

There are no safety analyses that utilize the equations appearing in Basis B3/4.7.1.1.

3/4.8 ELECTRICAL POWER SYSTEMS

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3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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

REPLACE WITH INSERT "A"

a. ~~Two physically independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System with:~~

   ~~1) Each system auxiliary transformer energized from an independent transmission circuit, and~~

   ~~2) One of the two transformers forming a system auxiliary transformer bank.~~

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

   1) A separate day tank containing a minimum volume of 450 gallons of fuel,

   2) A separate Fuel Oil Storage System containing a minimum volume of 42,000 gallons of fuel, and

   3) A separate fuel transfer pump.

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

ACTION:

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

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

Insert "A"

a. Each class 1E 4160 volt bus capable of being powered from:

1) Either transformer of the associated units normal System Auxiliary Transformer bank, and
2) Either transformer of the other units System Auxiliary Transformer bank, with

Each units System Auxiliary Transformer bank energized from an independent transmission circuit.

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LIMITING CONDITION FOR OPERATION

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 ~~Division 21 diesel generator is OPERABLE~~ 2A diesel generator capable of providing power to bus 14, 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.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and

b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring manually unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

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SURVEILLANCE REQUIREMENTS (Continued)

a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:

1) Verifying the fuel level in the day tank,

2) Verifying the fuel level in the fuel storage tank,

3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank,

4) Verifying the diesel starts from ambient condition and accelerates to at least 600 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 $\pm$ 420 volts and 60 $\pm$ 1.2 Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals:

a) Manual, or

b) Simulated loss of ESF bus voltage by itself, or

c) Simulated loss of ESF bus voltage in conjunction with an ESF actuation test signal, or

d) An ESF actuation test signal by itself.

5) Verifying the generator is synchronized, loaded to greater than or equal to 5500 kW in less than or equal to 60 seconds, operates with a load greater than or equal to 5500 kW for at least 60 minutes, and

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

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tanks;

c. At least once per 92 days by checking for and removing accumulated water from the fuel oil storage tanks;

d. At least once per 92 days and from new fuel oil prior to its addition to the storage tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 meets the following minimum requirements in accordance with the tests specified in ASTM-D975-1977:

1) A water and sediment content of less than or equal to 0.05 volume percent;

2) A kinematic viscosity of 40°C of greater than or equal to 1.3 centistokes, but less than or equal to 4.1 centistokes;

3) A specific gravity as specified by the manufacturer at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity at 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees;

Insert "Attachment 5"

Attachment 5

4.8.1.1.2

d. By sampling new fuel oil in accordance with ASTM-D4057 prior to addition to storage tanks and:

1) By verifying in accordance with the tests specified in ASTM-D975-81 prior to addition to the storage tanks that the sample has:

a) An API Gravity of within 0.3 degrees at 60/60 F, or a specific gravity of within 0.0016 at 60/60 F, when compared to the supplier's certificate, or an absolute specific gravity at 60/60 F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 27 degrees but less than or equal to 39 degrees;

b) A kinematic viscosity at 40 F of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if the gravity was not determined by comparision with the supplier's certification;

c) A flash point equal to or greater than 125 F; and

d) A clear and bright appearance with proper color when tested in accordance with ASTM-D4176-82.

2) By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM-D975-81 are met when tested in accordance with ASTM-D975-81 except that the analysis for sulfur may be performed in accordance with ASTM-D1552-79 or ASTM-D2622-82.

e. At least once every 92 days by obtaining a drain sample in accordance with ASTM-D4057-81 and verifying that the properties specified in Table 1 of ASTM-D975-81 are met when tested in accordance with ASTM-D975-81 except that the analysis for sulfur may be performed in accordance with ASTM-D1552-79 or ASTM-D2622-82.

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SURVEILLANCE REQUIREMENTS (Continued)

4) An impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70, analysis shall be completed within 7 days after obtaining the sample but may be performed after the addition of new fuel oil; and

5) The other properties specified in Table 1 of ASTM-D975-1977 and Regulatory Guide 1.137, Revision 1, October 1979, Position 2.a., when tested in accordance with ASTM-D975-1977, analysis shall be completed within 14 days after obtaining the sample but may be performed after the addition of new fuel oil.

F ~~d~~. At least once per 18 months, during shutdown, by:

1) Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,

2) Verifying the generator capability to reject a load of greater than or equal to 1034 kW ~~(SX Pump)~~ while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 4.5 Hz (transient state), 60 ± 1.2 Hz (steady state).

3) Verifying the diesel generator capability to reject a load of 5500 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection,

4) Simulating a loss of ESF bus voltage by itself, and:

a) Verifying de-energization of the ESF busses and load shedding from the ESF busses, and

b) Verifying the diesel starts on the auto-start signal, energizes the ESF busses with permanently connected loads within 10 seconds, energizes the auto-connected safe shutdown loads through the load sequencing timer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the ESF busses shall be maintained at 4160 ± 420 volts and 60 ± ~~4.5~~ 1.2 Hz during this test.

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5) Verifying that on an ESF Actuation test signal without loss of ESF bus voltages, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± ~~4.5~~ 1.2 Hz within 10 seconds after the auto-start signal; the generator steady state generator voltage and frequency shall be maintained within these limits during this test;

6) Simulating a loss of ESF bus voltage in conjunction with an ESF Actuation test signal, and

   a) Verifying deenergization of the ESF busses and load shedding from the ESF busses;

   b) Verifying the diesel starts on the auto-start signal, energizes the ESF busses with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the LOCA sequencer and operators for greater than or equal to 5 minutes whiles its generator is loaded with emergendy loads. After energization, the steady-state voltage and frequency of the ESF busses shall be maintained at 4160 ± 420 volts and 60 ± ~~4.5~~ 1.2 Hz during this test; and

   c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss-of-voltage on the emergency bus concurrent with a Safety Injection Actuation signal.

7) Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 6050 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 5500 kW. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± ~~4.5~~ 1.2 Hz within 10 seconds after the start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24-hour test, perform Specification 4.8.1.1.2~~d~~f.6)b);*

8) Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 5935 kW;

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*If Specification 4.8.1.1.2~~d~~f.6)b) is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated at 5500 kW for 1 hour or until operating temperature has stabilized.

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9) Verifying the diesel generator's capability to:

   a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

   b) Transfer its loads to the offsite power source, and

   c) Be restored to its standby status.

10) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation and (2) automatically energizing the emergency loads with offsite power;

11) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;

12) Verifying that the automatic LOCA and Shutdown sequence timer is OPERABLE with the interval between each load block within ± 10% of its design interval; and

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

   a) Turning gear engaged, and

   b) Emergency stop.

f. 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

g. 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, subsection ND of the ASME Code at a test pressure equal to 110 percent of the system design pressure.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.7.1. 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.

Table 4.8-1

DIESEL GENERATOR TEST SCHEDULE

NUMBER OF FAILURES IN LAST 100 VALID TESTS*	TEST FREQUENCY
$\leq$ 1	At least once per 31 days
2	At least once per 14 days
3	At least once per 7 days
$\geq$ 4	At least once per 3 days

*Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, Revision 1, August 1977, where the last 100 tests are determined on a per nuclear unit basis. For the purposes of this test schedule, only valid tests conducted after the OL issuance date shall be included in the computation of the "last 100 valid tests." Entry into this test schedule shall be made at the 31-day test frequency.

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LIMITING CONDITION FOR OPERATION

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

a. One circuit between the offsite transmission network and the Onsite Class 1E Distribution System with:

1) A system auxiliary transformer energized by one circuit of the offsite transmission network, and

2) One of the two transformers forming system auxiliary transformer bank.

Replace with insert "B"

b. One diesel generator with:

1) A day tank containing a minimum volume of 450 gallons of fuel,

2) A fuel storage system containing a minimum volume of 42,000 gallons of fuel, and

3) A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the spent fuel pool, and within 8 hours, depressurize and vent the Reactor Coolant System 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 the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

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

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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, and its associated full capacity charger, and

b. 125-Volt D.C. Bus 112 fed from Battery 112, and its associated full capacity charger.

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

ACTION:

a. With one of the required battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

and/or battery bus

and/or chargers

b. With one of the required full capacity chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Specification 4.8.2.1.2a.1) within 1 hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

c. With one 125-Volt bus inoperable, restore the inoperable bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD STANDBY within the following 30 hours.

Replace with Insert "C"

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 125-volts on float charge.

Insert "B"

a. One class 1E 4160 volt bus capable of being powered from:

1) Either transformer of the associated units System Auxiliary Transformer bank, and

2) Either transformer of the other units System Auxiliary Transformer bank, with

The System Auxiliary Transformer bank supplying the 4160 volt bus energized from an off-site transmission circuit.

Insert "C"

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 within the next 6 hours and in 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 within the next 6 hours and in Cold Shutdown within the following 30 hours.

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b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 105 volts, or battery overcharge with battery terminal voltage above 145 volts, by verifying that:

1) The parameters in Table 4.8-2 meet the Category B limits,

2) There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm,* and

3) The average electrolyte temperature of all connected ~~at least every sixth~~ cells is above 60°F.

c. At least once per 18 months by verifying that:

1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,

3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm,* and

4) The battery charger will supply a load equal to the manufacturer's rating for at least 8 hours.

d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for 240 minutes when the battery is subject to a battery service test;

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1.2d.;

f. At least once per 18 months during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

* Obtained by subtracting the normal resistance of: 1) the cross room rack connector (400×10^{-6} ohm, typical) and 2) the bi-level rack connector (50×10^{-6} ohm, typical); from the measured cell-to-cell connection resistance.

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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.

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, one 125-volt D.C. bus fed from its battery and its associated full-capacity charger shall be OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

a. With the required battery bank inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes or movement of irradiated fuel; initiate corrective action to restore the required battery to OPERABLE status as soon as possible, and within 8 hours, depressurize and vent the Reactor Coolant System through at least a 2 square inch vent.

b. With the required full-capacity charger inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Specification 4.8.2.1.2a.1) within 1 hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The above required 125-volt D.C. bus fed from its battery and its associated charger shall be demonstrated OPERABLE per Specifications 4.8.2.1.1 and 4.8.2.1.2.

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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 with tie breakers open ~~(both) between redundant busses within the unit~~ ~~(and~~ between units at the same station~~)~~:

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, ~~e~~

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

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

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

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.

Replace with insert "B"

~~b. With one A.C. vital bus not energized, reenergize the A.C. vital bus within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

~~c. With one A.C. inverter inoperable or not connected to its D.C. power supply, reenergize the A.C. vital bus from its associated inverter within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.~~

~~Two inverters may be disconnected from their D.C. Bus for up to 24 hours as necessary, for the purpose of performing an equalizing charge on their associated battery bank provided: (1) their vital busses are energized, and (2) the vital busses associated with the other battery bank are energized from their associated inverters and connected to their associated D.C. bus.~~

Insert "B"

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 within the next 6 hours and in 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 within the next 6 hours and in Cold Shutdown within the following 30 hours.

SURVEILLANCE REQUIREMENTS

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

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:

x a. One ~~4kV~~ 4160 VOLT ESF Bus (141 or 142),

b. One 480-Volt ESF Bus (131X or 132X),

c. One 480-Volt ESF Bus (131Z or 132Z), 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.

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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 3.8-1 shall be OPERABLE.

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 ~~7~~ 6.9 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 ~~and verifying that each relay and associated circuit breakers and control circuits function as designed and as specified in Table 3.8-1, and~~ to demonstrate that the overall penetration protection design remains within operable limits.

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SURVEILLANCE REQUIREMENTS (Continued)

c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2) By selecting and functionally testing a representative sample of at least 10% of each type of 480-volt circuit breaker. Circuit breakers selected for functional testing shall be selected on a rotating basis. ~~The functional test shall consist of injecting a current input at the specified Setpoint to each selected circuit breaker and verifying that each circuit breaker functions as designed and the response time is less than or equal to the specified value.~~ Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested; and

Testing of these circuit breakers shall consist of injecting a current in excess of the breakers nominal Setpoint and measuring the response time. The measured response time will be compared to the manufacturers data to ensure that it is less than or equal to a value specified by the manufacturer.

3) By selecting and functionally testing a representative sample of each type of fuse on a rotating basis. Each representative sample of fuses shall include at least 10% of all fuses of that type. The functional test shall consist of a nondestructive resistance measurement test which demonstrates that the fuse meets its manufacturer's design criteria. Fuses found inoperable during these functional tests shall be replaced with OPERABLE fuses prior to resuming operation. For each fuse found inoperable during these functional tests, an additional representative sample of at least 10% of all fuses of that type shall be functionally tested until no more failures are found or all fuses of that type have been functionally tested.

b. At least once per 60 months by subjecting each ~~7~~ 6.9 kV circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

TABLE 3.8-1

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
1. 6.9 kV Switchgear			
1RC01PA-RCPA	Primary	Long time - 1440x2.1	11.5
Bus 157 Cub 1		Inst. - 7680	N.A.
Bus 157 Norm. Feed	Backup	Long time - 4800x2	0.9
ACB ~~1677~~ 1571		Gr. - 200	0.3
Bus 157 Emerg. Feed	Backup	Long time - 4800x2	0.9
ACB 1572		Inst. - 7680	N.A.
1RC01PB-RCPB	Primary	Long time - 1400x2.1	11.5
Bus 156 Cub 2		Inst. - 7680	N.A.
Bus 156 Norm. Feed	Backup	Long time - 4800x2	0.7
ACB ~~1666~~ 1561		Gr. - 200	0.3
Bus 156 Emerg. Feed	Backup	Long time - 4800x2	0.7
ACB 1562		Gr. - 200	0.3
1RC01PC RCPC	Primary	Long time - 1440x2.1	11.5
Bus 158 Cub 5		Inst. - 7680	N.A.
Bus 158 Norm. Feed	Backup	Long time - 4800x2	0.7
ACB 1582		Gr. - 200	0.3
Bus 158 Emerg. Feed	Backup	Long time - 4800x2	0.7
ACB ~~1587~~ 1581		Gr. - 200	0.3

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
1. 6.9 kV Switchgear (Continued)			
1RC01PD - RCPD Bus 159 Cub 5	Primary	Long time - 1440x2.1 Inst. - 7680	11.5 N.A.
Bus 159 Norm. Feed ACB 1591	Backup	Long time - 4800x2 Gr. - 200	0.7 0.3
Bus 159 Emerg. Feed ACB ~~1597~~ 1592	Backup	Long time - 4800x2 Gr. - 200	0.7 0.3
2. 480V Switchgear			
1RY03EA - Pzr. Htr. Backup Group A	Primary	MCCB - 100	N.A.
Compt. A1-A6, B1	Backup	MCCB - 100	N.A.
1RY03EB - Pzr. Htr. Backup Group B	Primary	MCCB - 100	N.A.
Compt. B1-B6, A1	Backup	MCCB - 100	N.A.
1RY03EC - Pzr. Htr. Backup Group C	Primary	MCCB - 100	N.A.
Compt. A1-A6, B1	Backup	MCCB - 100	N.A.
1RY03ED - Pzr. Htr. Backup Group D	Primary	MCCB - 100	N.A.
Compt. B1-B6, A1	Backup	MCCB - 100	N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
3. 480V A.C. Ckt. Bkrs.			
1VP01CA - RCFC Fan 1A Low Speed Feed Bkr Swgr 131X Cub 4C	Primary	Long time - 450 Inst. - 4,500	20-32 N.A.
Hi Speed Feed Bkr Swgr 131X Cub 5C	Primary	Long time - 900 Inst. - 7,500	20-32 N.A.
Bus 131X Norm. Feed 141 Swgr., Cub 14, ACB 1415	Backup	Long time - 960 Inst. - 3,960	3.4 N.A.
1VP01CC - RCFC Fan 1C Low Speed Feed Bkr Swgr 131X Cub 4C	Primary	Long time - 450 Inst. - 4,500	20-32 N.A.
Hi Speed Feed Bkr Swgr 131X Cub 5C	Primary	Long time - 900 Inst. - 7,500	20-32 N.A.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
3. 480V A.C. Ckt. Bkrs.	(Continued)		
1VP01CB - RCFC Fan 1B			
Low Speed Feed Bkr Swgr 132X Cub 4C	Primary	Long time - 450 Inst. - 4,500	20-32 N.A.
Hi Speed Feed Bkr Swgr 132X Cub 5C	Primary	Long time - 900 Inst. - 7,500	20-32 N.A.
Bus 132X Norm. Feed 142 Swgr., Cub 14, ACB 1423	Backup	Long time - 960 Inst. - 3,960	3.4 N.A.
1VP01CD - RCFC Fan 1D			
Low Speed Feed Bkr Swgr 132X Cub 2C	Primary	Long time - 450 Inst. - 4,[illegible]0	20-32 N.A.
Hi Speed Feed Bkr Swgr 132X Cub 3C	Primary	Long time - 900 Inst. - 7,500	20-32 N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB)			
	MCC 133x4		
1RC01PA-A	Primary	15	N.A.
Cub B1	Backup	15	N.A.
1RC01PA-B	Primary	40	N.A.
Cub B2	Backup	40	N.A.
1HC22G	Primary	15	N.A.
Cub B3	Backup	15	N.A.
1FH036	Primary	15	N.A.
Cub B4	Backup	15	N.A.
1VP05CA	Primary	30	N.A.
Cub C1	Backup	30	N.A.
1RF03P	Primary	30	N.A.
Cub C2	Backup	30	N.A.
1RC01PD-A	Primary	15	N.A.
Cub D1	Backup	15	N.A.
1RC01PD-B	Primary	40	N.A.
Cub D2	Backup	40	N.A.
1RF02PB	Primary	30	N.A.
Cub D4	Backup	30	N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 133x4		
1RF01P	Primary	15	N.A.
Cub D5	Backup	15	N.A.
1RE01PA	Primary	40	N.A.
Cub D6	Backup	40	N.A.
1VP02CA	Primary	40	N.A.
Cub E1	Backup	40	N.A.
1VP04CA	Primary	125	N.A.
Cub E2	Backup	125	N.A.
1VP04CC	Primary	125	N.A.
Cub F1	Backup	125	N.A.
1EW11EA	Primary	125	N.A.
Cub F3	Backup	125	N.A.
1EW11EB	Primary	125	N.A.
Cub F3	Backup	125	N.A.
1EW11EC	Primary	125	N.A.
Cub F3	Backup	125	N.A.
1IC02EA	Primary	20	N.A.
Cub F5	Backup	20	N.A.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 133x4		
1IC02EB	Primary	20	N.A.
Cub G1	Backup	20	N.A.
1IC02EC	Primary	20	N.A.
Cub G2	Backup	20	N.A.
1IC02EF	Primary	30	N.A.
Cub A1	Backup	30	N.A.
1IC02EE	Primary	30	N.A.
Cub A2	Backup	30	N.A.
1IC02ED	Primary	30	N.A.
Cub A3	Backup	30	N.A.
IFH02J	Primary	15	N.A.
Cub G1	Backup	15	N.A.
IFH03J	Primary	15	N.A.
Cub G2	Backup	15	N.A.
1RC01PB-B	Primary	40	N.A.
Cub B1	Backup	40	N.A.
1RE01PB	Primary	70	N.A.
Cub B3	Backup	70	N.A.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 134x5		
1RC01PC-A	Primary	15	N.A.
Cub C1	Backup	15	N.A.
1RC01PC-B	Primary	40	N.A.
Cub C2	Backup	40	N.A.
1VP05CB	Primary	30	N.A.
Cub J1	Backup	30	N.A.
1RC01PB-A	Primary	15	N.A.
Cub C3	Backup	15	N.A.
1HC656-A	Primary	40	N.A.
Cub D3	Backup	40	N.A.
1VP02CB	Primary	40	N.A.
Cub F1	Backup	40	N.A.
1RC01R-A	Primary	15	N.A.
Cub F2	Backup	15	N.A.
1RF02PA	Primary	30	N.A.
Cub G3	Backup	30	B.A.
1EW12EA	Primary	125	N.A.
Cub F3	Backup	125	N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 134x5		
1EW12EB	Primary	125	N.A.
Cub F3	Backup	125	N.A.
1EW12EC	Primary	125	N.A.
Cub F3	Backup	125	N.A.
1VP04CB	Primary	125	N.A.
Cub F4	Backup	125	N.A.
1VP04CD	Primary	125	N.A.
Cub F5	Backup	125	N.A.
1SI8808C	Primary	70	N.A.
Cub A2	Backup	70	N.A.
1SI8808B	Primary	70	N.A.
Cub A3	Backup	70	N.A.
1RH8702B	Primary	15	N.A.
Cub B1	Backup	15	N.A.
1RH8701B	Primary	15	N.A.
Cub B3	Backup	15	N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 132x2		
1CV8112	Primary	5	N.A.
Cub B4	Backup	5	N.A.
1OG079	Primary	15	N.A.
Cub C1	Backup	15	N.A.
1WO056A	Primary	5	N.A.
Cub C2	Backup	5	N.A.
1OG080	Primary	15	N.A.
Cub C3	Backup	15	N.A.
1RY8000B	Primary	15	N.A.
Cub C4	Backup	15	N.A.
1RY8003C	Primary	15	N.A.
Cub C5	Backup	15	N.A.
1IP06E	Primary	20	N.A.
Cub E1	Backup	20	N.A.
1RC8003B	Primary	15	N.A.
Cub D4	Backup	15	N.A.
1LL43J	Primary	70	N.A.
Cub E2	Backup	70	N.A.
1RC8002A	Primary	40	N.A.
Cub G1	Backup	40	N.A.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 132x2		
1RC8002B Cub G2	Primary Backup	40 40	N.A. N.A.
1RC8002C Cub G3	Primary Backup	40 40	N.A. N.A.
1RC8002D Cub G4	Primary Backup	40 40	N.A. N.A.
	MCC 131x2A		
1SI8808D Cub A2	Primary	70	N.A.
~~1AP25E-A MCC 131x2 Cub B2~~	~~Backup~~	125	N.A.
1SI8808A Cub A3	Primary	70	N.A.
1AP25E-A MCC 131x2 Cub B2	Backup	125	N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 131x2		
1RC8001A	Primary	40	N.A.
Cub G1	Backup	40	N.A.
1RC8001B	Primary	40	N.A.
Cub G2	Backup	40	N.A.
1RC8001C	Primary	40	N.A.
Cub G3	Backup	40	N.A.
1RC8001D	Primary	40	N.A.
Cub G4	Backup	40	N.A.
1RH8701A	Primary	15	N.A.
Cub B1	Backup	15	N.A.
1RH8702A	Primary	15	N.A.
Cub B4	Backup	15	N.A.
1LL42J	Primary	70	N.A.
Cub C1	Backup	70	N.A.
1VQ001A	Primary	10	N.A.
Cub C3	Backup	10	N.A.
1VQ002A	Primary	10	N.A.
Cub F1	Backup	10	N.A.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 131x2		
1RC8003D Cub C4	Primary	15	N.A.
	Backup	15	N.A.
1RC8003A Cub C5	Primary	15	N.A.
	Backup	15	N.A.
1OG057A Cub D1	Primary	15	N.A.
	Backup	15	N.A.
1CC9416 Cub D3	Primary	15	N.A.
	Backup	15	N.A.
1CC9438 Cub D4	Primary	15	N.A.
	Backup	15	N.A.
1OG081 Cub E2	Primary	15	N.A.
	Backup	15	N.A.
	MCC 133x6		
1HC016 - Cub B2	Primary	125	N.A.
Cub B1	Backup	125	N.A.
1LL04E - Cub C3	Primary	225	N.A.
Cub C1	Backup	225	N.A.

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TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
		MCC 133x6	
1VP03CA Cub A3	Primary	125	N.A.
	Backup	125	N.A.
1VP03CD Cub C4	Primary	125	N.A.
	Backup	125	N.A.
	MCC 132x5		
1CC9414 Cub B4	Primary	5	N.A.
	Backup	N.A.	N.A.
	MCC 134x7		
1LL05E Cub B1, B2	Primary	225	N.A.
	Backup	225	N.A.
1VP03CB Cub A3	Primary	125	N.A.
	Backup	125	N.A.
1VP03CC Cub B4	Primary	125	N.A.
	Backup	125	N.A.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	DEVICE	TRIP SETPOINT (Amperes)	RESPONSE TIME (Sec/Cycle)
4. 480V Molded Case Ckt. Bkts. (MCCB) (Continued)			
	MCC 131x2B		
1WO056B	Primary	5	N.A.
Cub A1	Backup	5	N.A.
1RY8000A	Primary	10	N.A.
Cub A5	Backup	10	N.A.
	~~125 VDC Pnl 114 Sec. E~~		
~~1LL621~~	~~Primary~~	70	N.A.
~~Cub 152~~	~~Backup~~	70	N.A.
5. 260 VAC RCD Power (53 rods, 5 panels)			
Stationary Gripper	Primary	10 - Fuse	N.A.
Coils (all panels)	Backup	10 - Fuse	N.A.
Lift Coils	Primary	50 - Fuse	N.A.
(all panels)	Backup	50 - Fuse	N.A.
Movable Gripper	Primary	10 - Fuse	N.A.
Coils (all panels)	Backup	10 - Fuse	N.A.

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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 3.8-2, 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 ~~normally in force~~ 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

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

VALVE NUMBER	FUNCTION
1RC8001A	RC Loop 1A Hot Leg Stop Valve
1RC8001B	RC Loop 1B Hot Leg Stop Valve
1RC8001C	RC Loop 1C Hot Leg Stop Valve
1RC8001D	RC Loop 1D Hot Leg Stop Valve
1OG081	H2 Recomb Suction Cnmt. Isol. Valve
1CC9438	CC Wtr from RC Pumps Thermal Bar Isol. Valve
1CC9416	CC Wtr from RCPS Isol. Valve
1OG057A	H2 Recomb Cnmt. Isol. Valve Disch. "H"
1RC8003A	RC Loop 1A Bypass Leg Stop Valve
1RC8003D	RC Loop 1D Bypass Leg Stop Valve
1RH8701A	RC Loop 1A to RHR Pump Isol. Valve
1RH8702A	RC Loop 1C to RHR Pump Isol. Valve
1SI8808A	Accum. 1A Disch. Isol. Valve
1SI8808D	Accum. 1D Disch. Isol. Valve
1RY8000A	Pzr. Relief Isol. Valve 1A
1WO056B	Chilled Water Cnmt. Isol. Valve
1RC8002A	RC Loop 1A Cold Leg Stop Valve
1RC8002B	RC Loop 1B Cold Leg Stop Valve
1RC8002C	RC Loop 1C Cold Leg Stop Valve
1RC8002D	RC Loop 1D Cold Leg Stop Valve
1RC8003B	RC Loop 1B Bypass Leg Stop Valve
1RC8003C	RC Loop 1C Bypass Leg Stop Valve
1RY8000B	Pzr. Relief Valve 1B
1OG080	H2 Recomb Suct. Cnmt. Isol. Valve
1WO056A	Chilled Water Cnmt. Isol. Valve
1OG079	H2 Recomb. Disch. Cnmt. Isol. Valve
1CV8112	RC Pump Seal Water Return Isol. Valve
1RH8701B	RC Loop 1A to RHR Pump Isol. Valve
1RH8702B	RC Loop 1C to RHR Pump Isol. Valve
1SI8808B	Accum. 1B Disch. Isol. Valve
1SI8808C	Accum. 1C Disch. Isol. Valve
1CC9414	CC Water from React. Chg. Pumps Isol. Valve 1B

Replace with Insert "E"

TABLE 3.8-2

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

Insert "E" (1 of 5)

VALVE NUMBER	FUNCTION
00G059	Unit 1 Suct Isol Vlv H_2 Recomb
00G060	Unit 1 Discharge IsolVlv 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
10G057A	H2 Recomb Cnmt. Isol. Valve Disch. "H"
10G079	H2 Recomb. Disch. Cnmt. Isol. Valve
10G080	H2 Recomb Suct. Cnmt. Isol. Valve
10G081	H2 Recomb Suction Cnmt. Isol. Valve
10G082	0A H_2 Recomb Disch Cnmt Isol Vlv
10G083	0A H_2 Recomb Disch Cnmt Isol Vlv
10G084	0A H_2 Recomb Cnmt Outlet Isol Vlv
10G085	H_2 Recomb Cnmt Outlet 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 Pp 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

TABLE 3.8-2 (Cont.)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

(2065)

VALVE NUMBER	FUNCTION
1CC685	RCP Thermal Barrier Outlet Hdr Cnmt Isol Vlv
1CC9413A	RCP CC Supply Dwst CNMT Isol
1CC9413B	RCPs CC Supply Upst CNMT Isol
1CC9414	CC Water from React. Chg. Pumps Isol. Valve 1B
1CC9416	CC Wtr from RCPS Isol. Valve
1CC9438	CC Wtr from RC Pumps Thermal Bar Isol. Valve
1CS001A	1A CS Pp Suct From RWST 364'
1CS001B	1B CS PP Suction from RWST 364'
1CS007A	CC 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
1CV112D	MOV RWST to Chg PP Suct Hdr
1CV112E	MOV RWST to Chg PP Suct Hdr
1CV8100	MOV RCP Seal Leakoff Hdr Isol
1CV8105	MOV Chrg Pps Disch Hdr Isol Vlv
1CV8106	MOV Chrg Pps Disch Hdr Isol Vlv
1CV8109	MOV PD Chrg. Pp. Miniflow Recirc. Vlv
1CV8110	MOV A & B Chg. pp Recirc Down stream Isol
1CV8111	MOV A & B Chg Pp Recirc Upstream Isol
1CV8112	RC Pump Seal Water Return Isol. Valve

TABLE 3.8-2 (Cont.)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

VALVE NUMBER	FUNCTION
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.
1RC8001A	RC Loop 1A Hot Leg Stop Valve
1RC8001B	RC Loop 1B Hot Leg Stop Valve
1RC8001C	RC Loop 1C Hot Leg Stop Valve
1RC8001D	RC Loop 1D Hot Leg Stop Valve
1RC8002A	RC Loop 1A Cold Leg Stop Valve
1RC8002B	RC Loop 1B Cold Leg Stop Valve
1RC8002C	RC Loop 1C Cold Leg Stop Valve
1RC8002D	RC Loop 1D Cold Leg Stop Valve
1RC8003A	RC Loop 1A Bypass Leg Stop Valve
1RC8003B	RC Loop 1B Bypass Leg Stop Valve
1RC8003C	RC Loop 1C Bypass Leg Stop Valve
1RC8003D	RC Loop 1D Bypass Leg Stop Valve
1RH610	RH PP 1RH01PB 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	Pzr. Relief Isol. Valve 1A
1RY8000B	Pzr. Relief Valve 1B

TABLE 3.8-2 (Cont.)

MOTOR-OPERATED VALVES THERMAL OVERLOAD

PROTECTION DEVICES

VALVE NUMBER	FUNCTION
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
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 RH HX 1A Disch 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 1B 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

TABLE 3.8-2 (Cont.)

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION DEVICES

VALVE NUMBER	FUNCTION
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&B Return
1SX027B	RCFC B&D SX Return MOV
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
1WO023A	Chiller 1WO01CA Oil Cooler Return Vlv
1WO023B	Chiller 1WO01CB Oil Cooler Return Vlv
1WO056A	Chilled Water Cnmt. Isol. Valve
1WO056B	Chilled Water Cnmt. Isol. Valve

3.4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A. C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.3 The 2A Diesel Generator shall be capable of being manually started and crosstied to Bus 141.*

APPLICABILITY: Modes 1, 2, and 3

ACTION: With the 2A Diesel Generator incapable of being manually started and crosstied to Bus 141, restore the diesel generator to capable status within 7 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.4 The 2A diesel generator shall be demonstrated capable of providing power to ~~1A auxiliary feedwater pump.~~ Bus 141

a. At least once per day by:

1. Verifying the day tank level is greater than 450 gallons.

2. Verifying DC control power is available to the 2A Diesel Generator local control panel (2PL07J).

3. Verifying that at least one starting air receiver is at greater than 175 psig.

4. Verifying the Essential Service Water System is ~~properly aligned~~ available to supply cooling requirements.

b. At least once per 31 days by:

1. Verifying the diesel generator starts manually and operates with a load of greater than or equal to 5500 KW for one half hour.

c. At least once per 18 months by:

1. Verifying the diesel generator can be crosstied to Bus 141.

* The reporting requirements of 10CFR50.36(c)(2) do not apply during the first eight hours in the Action Statement