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MURRAY R. EDELMAN
VICE PRESIDENT
NUCLEAR

November 25, 1985
PY-CEI/NRR-0405 L

Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
FSAR Chapter 8 Changes

Dear Mr. Youngblood:

The purpose of this letter is to describe substantive changes we are making to FSAR Chapter 8. The proposed changes and the reasons for the changes are described in Attachment 1 to this letter. These changes are incorporated into Amendment 22.

Should you have any questions regarding this information, please feel free to contact me.

Very truly yours,

Murray R. Edelman
Vice President
Nuclear Group

MRE:jsd

Attachments

cc: Jay Silberg, Esq.
John Stefano (2)
J. Grobe

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Changes to FSAR Chapter 8

1) FSAR Page 8.3-4

Paragraph 8.3.1.1.2.5 has been revised to reflect incorporation of key locked switches (one for each division) in the control logic for the non-Class 1E 4.16kV busses ("stub" buses) which supply critical non-Class 1E loads such as the control rod drive pumps and nuclear closed cooling water pumps. The switches enable the operator to override the LOCA signal and reclose the stub bus breakers to restore drywell cooling to reduce drywell pressure following containment isolation. These switches were incorporated in response to IE Information Notice 84-35. A description of the operation and use of these bypass switches is also included in section 9.2.8.3 (FSAR pages 9.2-43 and 9.2-44).

2) FSAR Page 8.3-7

Section 8.3.1.1.2.11 has been changed to indicate changes to the undervoltage protection provided on each Class 1E 4160 V bus. The level of degraded voltage required to initiate undervoltage protection has been changed from 96 percent to 94 percent. This change was made to provide consistancy with the Technical Specifications. Part 2(b) of the section has been changed to indicate a 3 second delay following tripping of the offsite source breakers prior to closing the diesel generator circuit breakers during a LOCA. This delay ensures the bus has completely deenergized to prevent paralleling the diesel generators to the bus in an out of phase condition.

alternate preferred power supply are interlocked with each other to preclude paralleling of the preferred and alternate preferred power supplies.

8.3.1.1.2.5 Interconnections between Safety Related and Non-Safety Related Buses

Interconnections are made at the 4.16 kV level between Division 1 and a non-Class 1E bus, and between Division 2 and a non-Class 1E bus. These non-Class 1E buses ("stub" buses) supply critical non-Class 1E loads, such as the control rod drive pumps and nuclear closed cooling water pumps (see Figure 8.3-10). Circuit breakers feeding the stub buses are qualified isolation devices, are housed in Class 1E switchgear, are tripped upon receipt of a LOCA signal, and satisfy the recommendations of Regulatory Guide 1.75. A keylocked NORMAL-BYPASS switch, one for each Division, enables the control room operator to override the LOCA signal and close the stub bus breaker for either Division using the breaker control switch (see Figure 8.3-9). Control of ESF safety function bypass is addressed in Section 7.3.2.1.2, Item 14.

8.3.1.1.2.6 Redundant Bus Separation

Class 1E switchgear, load centers, and motor control centers of each division are located in rooms separate from similar equipment of other divisions. Figures 8.3-3 through 8.3-5 depict equipment locations.

8.3.1.1.2.7 Equipment Capacities

Equipment capacities are listed in Table 8.3-2.

8.3.1.1.2.8 Automatic Bus Loading and Stripping

The diesel generator for each division is automatically started upon receipt of a LOCA signal and/or an undervoltage signal at the associated division bus. If the diesel generator is started by a LOCA signal only, the diesel generator is not connected to the bus but remains in standby operation, non-Class 1E 4.16 kV buses (stub buses) fed from Division 1 and 2 buses are shed, and LOCA loads are started

(c) Low Voltage Overcurrent Switchgear Protection (51): 3-single phase, electromechanical

(d) Low Voltage Ground Protection (51NT): on each secondary neutral, electromechanical

(e) High Voltage Overcurrent Protection (5IN): a single phase ground overcurrent electromechanical

2. Voltage Relaying

Two levels of undervoltage protection are provided on each class 1E 4160 V bus to conform to the requirements of the NRC Branch Technical Position PSB-1.

The first level is designed to protect the bus against a degraded grid voltage condition. This system consists of two sets of three undervoltage relays, arranged in a 1-of-3 twice logic scheme, and associated time delay relays to perform the following if the bus voltage degrades to a condition between 94 percent and 75 percent of equipment rated voltage.

(a) Initiate undervoltage alarms after 15 seconds of sustained degraded voltage.

(b) Trip the offsite source breakers after 15 seconds if a LOCA occurs concurrent with the degraded voltage; then upon an additional 3 second delay, close the diesel generator circuit breaker. Once the diesel generator circuit breaker is closed, sequencing of Class 1E loads onto the bus will be initiated.

(c) Trip the offsite source breakers, after 5 minutes of sustained degraded voltage without a concurrent LOCA, and initiate energizing the class 1E bus from the diesel generator power supply.

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The second level is designed to protect the bus against loss of power. This system consists of two sets of three undervoltage relays, arranged in a 1-of-3 twice logic scheme, and an associated time delay relay that after 3 seconds with a bus voltage below 75 percent will trip the offsite power source breakers, start the diesel and connect the bus to the diesel generator.

The overall design adequacy of the undervoltage protection system has been tested as described in Section 8.3.1.1.2.14. Transformer tap settings, and the voltage relays and timers have been adjusted to optimize the voltage at all distribution levels.

The use of the undervoltage protection system in the automatic bus loading and shedding scheme is discussed in Section 8.3.1.1.2.8.

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3. Preferred and Alternate Preferred Power Supply Bus Feeder Breakers

Bus feeder overcurrent protection for preferred and alternate preferred power supply bus feeder breakers consists of three single phase time overcurrent electromechanical relays (51) and one ground overcurrent electromechanical relay (51N) for each circuit breaker.