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February 10, 1981

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 Operating Reactors - Branch 2
 Division of Operating Reactors
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555

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Subject: Dresden Station Units 2 and 3
 Additional Response Concerning
 Fire Protection Safe Shutdown
 Analysis
NRC Docket Nos. 50-237/249

References (a): T. A. Ippolito letter to J. S. Abel
 dated October 27, 1980.

(b): R. F. Janecek letter to T. A. Ippolito
 dated January 6, 1981.

Dear Mr. Ippolito:

Reference (b) provided our partial response to Fire Protection open items identified in Reference (a), which indicated that safe shutdown responses would be provided at a later date.

Enclosure 1 to this letter provides our responses to the safe shutdown open items identified as Items 3.1.5.1 and 3.2.4.1 through 3.2.4.9. Also enclosed is Supplement 2 to the Dresden 2 and 3 Fire Protection Safe Shutdown Analysis addressing the turbine building mezzanine area in response to Item 3.1.5.1.

Please address any questions concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this transmittal are provided for your use.

Very truly yours,

Robert F. Janecek

Robert F. Janecek
 Nuclear Licensing Administrator
 Boiling Water Reactors

cc: RIII Inspector - Dresden

Enclosure

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Enclosure 1

Dresden Station Units 2 and 3
Fire Protection Safe Shutdown Capability

Water Suppression Systems SER item 3.1.5

1. Provide alternate shutdown capability independent of the turbine mezzanine area.

Response

The attached Supplement 2 Fire Protection "Safe Shutdown Analysis Part 2, provides a discription of an alternate shutdown capability independent of the turbine mezzanine area.

Shutdown Capability SER item 3.2.4

To meet Section III, Paragraph G of the proposed Appendix R to 10 CFR Part 50, the licensee should provide an alternate shutdown capability for the following areas of the plant:

1. Control Room (Fire Area 2.0).

Response

Control Room (Fire Area 2.0)

Alternate shutdown capability for a postulated Control Room fire is discussed in Section 3.1.5 of the Dresden 2 & 3 Safe Shutdown Analysis, and Section A3.5 of the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

- Reactivity Control - Reactor Protection System
- Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup water from the Condensate Transfer Pumps or the Service Water Pumps
- Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System.

Only control and instrumentation cables are routed through the Control Room. With manual operation of necessary valves, local control of pumps and Diesel Generators, local monitoring of instrumentation in the Reactor Building, and provisions at these locations for local isolation from the Control Room; alternate shutdown capability exists for a postulated fire in the Dresden 2 & 3 Control Room.

2. Cable spreading area (Fire Zone 6.2) - auxiliary electrical equipment room.

Response

Alternate shutdown capability for a postulated Auxiliary Electric Equipment Room fire is discussed in Section 3.1.6 of the Dresden 2 & 3 Safety Shutdown Analysis, and Section A3.7 of the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup water from the Condensate Transfer Pumps or the Service Water Pumps

Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

Only control and instrumentation cables are routed through the Auxiliary Electrical Equipment Room. With local control of pumps and the Diesel Generators, manual operation of necessary valves, and local monitoring of instrumentation in the Reactor Building, alternate shutdown capability exists for a postulated fire in the Dresden 2 & 3 Auxiliary Electrical Equipment Room.

3. Turbine Building, (Fire Zones 8.2.6A and 8.2.5A) - 4kv switchgear groups 23 and 24. Area at elevation 534 feet bounded by column rows D-E and 31-33 and elevation 517 feet bounded by column rows D-E and 31-36.

Response

Alternate shutdown capability for a postulated fire near Unit 2 SWGR 23 and 24 is discussed in Section 3.1.10 of the Dresden 2 & 3 Safe Shutdown Analysis and Section A3.9 of the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pump 3B or Unit 3 Service Water Pumps

Reactor Water Makeup - HPCI System

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

The HPCI cables previously routed through this zone have been rerouted. Electrical power from Diesel Generators 2/3 and 3 remains available to feed SWGR's 23-1 (directly), and 24-1 (via bus tie from 34-1). With local control, manual valve operation, and local instrument monitoring, alternate shutdown capability exists for a postulated fire on the Unit 2 mezzanine, D-E/31-33.

Alternate shutdown capability for a postulated fire on the Unit 2 ground floor D-E/31-36 is discussed in Section 3.1.8 of the Dresden 2 & 3 Safe Shutdown Analysis. No further equipment beyond that discussed in the Safe Shutdown Analysis and necessary for cold shutdown is affected by a fire in this zone; therefore this zone was eliminated from further discussion in the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pump 3B or Unit 3 Service Water Pumps

Reactor Water Makeup - HPCI System

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

The HPCI cables previously routed through this zone have been rerouted. Electrical power from Diesel Generators 2/3 and 3 remains available to feed SWGR's 23-1 (directly) and 24-1 (via bus tie from 34-1). With local control, manual valve operation, and local instrument monitoring, alternate shutdown capability exists for a postulated fire on the Unit 2 ground floor, D-E/31-36.

4. Turbine Building, (Fire Zone 8.2.6B and 8.2.5B) - 4kv switchgear groups 33 and 34. Area at elevation 517 feet bounded by column rows D-E and 52-56.

Response

Alternate shutdown capability for a postulated fire near Unit 3 SWGR 33 and 34 is discussed in Section 3.1.11 of the Dresden 2 & 3 Safe Shutdown Analysis, and Section A3.9 of the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System (RPS)

Decay Heat Removal - Relief Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pumps or Unit 2 Service Water Pumps

Reactor Water Makeup - HPCI System

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

Electrical power from Diesel Generators 2 and 2/3 remains available to feed SWGR's 33-1 (directly) and 34-1 (via bus tie from 24-1). Utilizing emergency diesel power, alternate shutdown capability exists independent of a postulated fire on the Unit 3 mezzanine, D-E/54-55.

Alternate shutdown capability for a postulated fire on the Unit 3 ground floor D-E/52-56 is discussed in Section 3.1.9 of the Dresden 2 & 3 Safe Shutdown Analysis. No further equipment beyond that discussed in the Safe Shutdown Analysis and necessary for cold shutdown is affected by a fire in this zone; therefore this zone was eliminated from further discussion in the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

- Reactivity Control - Reactor Protection System
- Decay Heat Removal - Relief Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pumps or Unit 2 Service Water Pumps
- Reactor Water Makeup - HPCI System

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

Electrical power from Diesel Generators 2 and 2/3 remains available to feed SWGR's 33-1 (directly) and 34-1 (via bus tie from 24-1). Utilizing emergency diesel power, alternate shutdown capability exists independent of a postulated fire on the Unit 3 ground floor, D-E/52-56.

- 5. Reactor Building, (Fire Zone 1.1.2.3A) - 4kv switchgear 23-1 and 24-1. Area at elevation 545 feet bounded by column rows M-N and 39-42.

Response

Alternate shutdown capability for a postulated fire near the 4kv switchgear 23-1 and 24-1 is discussed in Section 3.1.3 of the Dresden 2 & 3 Safe Shutdown Analysis; and Section A3.3 of the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

- Reactivity Control - Reactor Protection System
- Decay Heat Removal - Relief Valves and Isolation Condenser with makeup from Condensate Transfer Pump 3B or Unit 3 Service Water Pumps
- Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Unit 3 Reactor Building Closed Cooling Water System, Service Water System, or, Main Condenser and Condensate System

The isolation condenser valves can be manually operated to remove decay heat. Therefore, up to two hours are available before reactor water makeup is necessary. Diesel Generator 2 can be locally controlled. All other equipment can be controlled from the Control Room. Safe hot shutdown can be accomplished with either of the 4 kV switchgear 23-1 or 24-1. These switchgear are protected by an overhead water shield. They are separated by a 12-foot high concrete block fire barrier, which extends from the floor up to the water shield and from the Reactor Building wall to two feet beyond the front of the switchgear cabinets. For ease in maintenance, there is a 7-foot by 1-1/2-foot opening in this fire barrier beginning 2-feet, 4-inches behind the cabinets. There is 1-1/2 feet from the switchgear cabinet to the block fire barrier. A curb surrounds the switchgear area. All cable trays communicating between divisions have fire stops. Fire detection has been installed over the switchgear. Hose reels and portable extinguishers are readily available to this area. Considering the extensive fire detection and suppression features provided in this area, at least one 4 kV switchgear will remain available to support hot shutdown. Cold shutdown may be accomplished independent of this area by utilizing the condensate system.

6. Reactor Building, (Fire Zone 1.1.1.3A) - 4kv switchgear 33-1 and 34-1. Area at elevation 545 feet bounded by column rows M-N and 46-49.

Response

Alternate shutdown capability for a postulated fire near the 4 kv switchgear 33-1 and 34-1 is discussed in Section 3.1.1 of the Dresden 2 & 3 Safe Shutdown Analysis, and Section A3.3 of the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pump 2B or Unit 2 Service Water Pumps

Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Unit 2, Reactor Building Closed Cooling Water System, Service Water System, or, Main Condenser and Condensate System

The isolation condenser valves can be manually operated to remove decay heat. Therefore, up to two hours are available before reactor water makeup is necessary. Diesel Generator 3 can be locally controlled. All other equipment can be controlled from the Control Room. Safe hot shutdown can be accomplished with either of the 4kv switchgear 33-1 or 34-1. The switchgear are protected by an overhead water shield. They are separated by a 12-foot high concrete block fire barrier, which extends from the floor up to the water shield and from the Reactor Building wall to two feet beyond the front of the switchgear cabinets. For ease in maintenance, there is a 7-foot by 1-1/2-foot opening in this fire barrier beginning 2-feet, 4-inches behind the cabinets. There is 1-1/2 feet from the switchgear cabinet to the block fire barrier. A curb surrounds the switchgear area. All cable trays communicating between divisions have fire stops. Fire detection has been installed over the switchgear. Hose reels and portable extinguishers are readily available to this area. Considering the extensive fire detection and suppression features provided in this area, at least one 4 kV switchgear will remain available to support hot shutdown. Cold shutdown may be accomplished independent of this area by utilizing the condensate system.

7. Reactor Building, (Fire Zone 1.1.2.4A) - 480V switchgear 28 and 29. Area at elevation 570 feet bounded by column rows M-N and 40-42.

Response

Alternate shutdown capability for a postulated fire near the Unit 2 480V switchgear is discussed in Section 3.1.4 of the Dresden 2 & 3 Safe Shutdown Analysis. No further equipment beyond that discussed in the Safe Shutdown Analysis and necessary for cold shutdown is affected by a fire in this zone, therefore, this zone was eliminated from further discussion in the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Relief Valves and Isolation Condenser with makeup from Condensate Transfer Pump 3B or the Service Water Pumps

Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

The isolation condenser valves may be manually operated. With manual valve operation, alternate shutdown capability exists for a postulated fire at the Unit 2 480V switchgear.

8. Reactor Building, (Fire Zone 1.1.1.4A) - 480V switchgear 38 and 39. Area at elevation 570 feet bounded by column rows M-N and 46-48.

Response

Alternate shutdown capability for a postulated fire near the Unit 3 480V switchgear is discussed in Section 3.1.2 of the Dresden 2 & 3 Safe Shutdown Analysis. No further equipment beyond that discussed in the Safe Shutdown Analysis and necessary for cold shutdown is affected by a fire in this zone; therefore, this zone was eliminated from further discussion in the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pump 2B or the Service Water Pumps

Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

The isolation condenser valves may be manually operated. With manual valve operation, alternate shutdown capability exists for a postulated fire near the Unit 3 480V switchgear.

9. Unit 3 cable tunnel, (Fire Zone 8.2.4).

Response

Alternate shutdown capability for a postulated Unit 3 cable tunnel fire is discussed in Section 3.1.7 of the Dresden 2 & 3 Safe Shutdown Analysis. No further equipment beyond that discussed in the Safe Shutdown Analysis and necessary for cold shutdown is affected by a fire in this zone; therefore, this zone was eliminated from further discussion in the Cold Shutdown Supplement. The systems involved consist of the following:

Hot Shutdown Method

Reactivity Control - Reactor Protection System

Decay Heat Removal - Safety Valves, Target Rock Valve, and Isolation Condenser with makeup from Condensate Transfer Pumps or Unit 2 Service Water Pumps

Reactor Water Makeup - Control Rod Drive Pumps

Cold Shutdown Method

Shutdown Cooling System, Reactor Building Closed Cooling Water System, Service Water System

Electrical Power from Diesel Generators 2 and 2/3 remains available to feed SWGR's 33-1 and 34-1, which may then feed SWGR's 33 and 34. With local control, manual valve operation, and local instrument monitoring, alternate shutdown capability exists for a postulated fire in the Unit 3 Cable Tunnel.

Conclusion

Commonwealth Edison Company believes that alternate shutdown capability presently exists at Dresden Units 2 & 3 in compliance with proposed Appendix R to 10 CFR Part 50. Adequate protection features have been provided for cables and equipment of redundant systems such that at least one method of achieving safe shutdown remains available in case of any postulated fire. The Dresden 2 & 3 Safe Shutdown Analysis Supplement 2 and Cold Shutdown Supplement describes in detail the alternate shutdown capability for specific plant areas. If the NRC Staff has any specific questions regarding safe shutdown capability at Dresden 2 & 3, we will respond to them in order to resolve this item.