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Docket No: 50-237

Commonwealth Edison Company
ATTN: Mr. R. L. Bolger
Assistant Vice President
Post Office Box 767
Chicago, Illinois 60690

Gentlemen:

We are reviewing your submittal of July 1, 1975, regarding emergency core cooling analysis and have determined that the additional information requested in Enclosure A is necessary to continue our review. Five copies of large scale piping and instrumentation diagrams and of electrical diagrams requested in question 9 of the enclosure should be submitted with your reply. Where applicable, the enclosed questions may be answered by reference to previous submittals.

To enable us to maintain a review schedule consistent with your schedule for return to operation following the current refueling outage, please submit the requested information by April 2, 1976.

Sincerely,

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosure:
Request for Additional
Information

DLZ

OFFICE >	OR:ORB #2	OR:ORB #2			
SURNAME >	RSilver:ro	DLZiemann			
DATE >	3/19/76	3/19/76			

MAR 19 1978

cc w/enclosure:

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604 Liberty Street
Morris, Illinois 60451

COMMONWEALTH EDISON COMPANYDRESDEN UNIT 2DOCKET NO. 50-237REVIEW OF FAILURE MODES OF ECCS EQUIPMENTREQUEST FOR ADDITIONAL INFORMATION

The Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors, 10 CFR Part 50.46, requires that an analysis of possible failure modes of ECCS equipment and of their effects on ECCS performance be performed. This analysis should demonstrate that your ECCS and supporting subsystems meet the single failure criterion. We require that documentation of this analysis be provided in sufficient detail to enable the staff to (1) verify that the analysis demonstrates that the ECCS and supporting subsystems meet the single failure criterion as defined in IEEE Std 279-1971, and (2) determine the acceptability and verify the implementation of any proposed design modification required as a result of your analysis. Therefore, we require that the following information be submitted to support the single failure analysis of the ECCS and supporting subsystems:

1. Describe the design of the ECCS actuation system. Identify any non-conformance of this design with the single failure requirements of IEEE Std 279-1971. Describe any changes proposed for meeting these requirements.
2. Describe the design of the onsite emergency power system, a-c and d-c. Identify any non-conformance of this design with the single failure requirements of IEEE Std 279-1971. Describe any changes proposed for meeting these requirements.

3. Identify all the electrical equipment required for the ECCS and supporting subsystems to enable performance of the ECCS safety function. Define the qualification status (ability to withstand the design basis seismic and environmental conditions) of this equipment, and the basis for such qualification, to provide reasonable assurance that the equipment will be capable of performing its safety function. Describe any proposed design modifications, analyses, or test programs for meeting the environmental and seismic qualification requirements.
4. Identify all electrical equipment, both safety and non-safety, that may become submerged as a result of a LOCA. For all such equipment that is not qualified for service in such an environment, provide an analysis to determine the following: (1) the safety significance of the failure of the equipment (e.g., spurious operation, loss of function, loss of accident/post-accident monitoring, etc.) as a result of flooding, (2) the effects on Class IE electrical power sources serving this equipment as a result of such failures, and (3) the proposed design changes resulting from your analysis. Your response to item (2) should specifically address breaker and fuse coordination and the isolation capabilities of this aspect of your design.
5. Identify any single electrically operated fluid system component, including manually-controlled electrically-operated valves, whose failure could result in loss of capability of the ECCS to perform its safety function. Failure in both the "fail to function" sense and in the "undesirable function" sense should be considered, and this should apply even though the component may not be required to function in a given safety operational sequence.

6. With regard to the equipment identified in item (5), provide a detailed description of any proposed design changes deemed necessary by your analysis for meeting the single failure criterion. Your response should specifically address but should not be limited to changes made to meet the single failure criterion by conformance to Branch Technical Position EICSB 18, "Application of the Single Failure Criterion to Manually-Controlled Electrically-Operated Valves", of Appendix 7A of the Regulatory Standard Review Plan. This position establishes the acceptability of disconnecting power to the electrical components of a fluid system as one means of meeting the single failure criterion.
7. Identify any electrical interlocks between redundant portions of the ECCS and supporting subsystems. Define the consequence of failure of any interlock on the capability of the ECCS to perform its safety function. Describe any proposed design modifications resulting from this review.
8. Provide the electrical and physical separation criteria for your design of redundant safety equipment and functions. Include the features in your design that minimize the vulnerability of the ECCS and supporting subsystems to common failure modes.
9. Provide the following drawings for the ECCS and supporting subsystems:
 - a. Piping and Instrument Diagrams (P&ID).
 - b. Electrical Control Schematic Diagrams.
 - c. One Line Diagram of the Onsite AC Power Distribution System.
 - d. One Line Diagram of the DC Power Distribution System.
 - e. One Line Diagram of the Vital Instrument Power Distribution System.