

April 5, 1988

Docket Nos. 50-295
and 50-304

Mr. L. D. Butterfield, Jr.
Nuclear Licensing Manager
Commonwealth Edison Company
Post Office Box 767
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Dear Mr. Butterfield:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RELATED TO RE-EVALUATION
OF ZION COMPONENT COOLING WATER SYSTEM IN LIGHT OF PROBLEMS
EXPERIENCED AT THE BYRON/BRAIDWOOD PLANTS (SRP SECTION 9.2.2)
TAC NUS. 66759/60

The design of the Zion Units 1 and 2 Component Cooling Water (CCW) system is very similar to that of the Byron and Braidwood stations. The recent events at Byron Unit 2 (11/20/86), Byron Unit 1 (4/8/87), and Braidwood Unit 1 (1/21/87) indicated to the staff that the potential exists for a simultaneous loss of all CCW to both units if the system were in its normal cross-connected shared lineup for dual unit operation.

The staff has determined that more information is necessary in order to compare the system design with the current SRP Section 9.2.2 acceptance criteria and the acceptance criteria in use at the time of Zion licensing.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original Signed by J. Norris for/

Daniel R. Muller, Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:
As stated

cc:
See next page

PDIII-2:PM
JNorris:6
4/5/88

PDIII-2:LA
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PDIII-2:PD
DMuller
4/5/88

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Sincerely,

A handwritten signature in dark ink, appearing to read "D. R. Muller", is written over the typed name.

for Daniel R. Muller, Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:
As stated

cc:
See next page

Mr. L. D. Butterfield, Jr.
Commonwealth Edison Company

Zion Station

cc:

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REQUEST FOR ADDITIONAL INFORMATION
COMPONENT COOLING WATER SYSTEM
ZION STATION, UNITS 1 AND 2
DOCKET NOS. 50-295/304

1. In the event of a LOCA in one unit while both units are operating, provide the following information:
 - a. Describe how nonessential portions of the CCW system are isolated in order to ensure the system safety function given a single active failure. It appears that only manual isolation capability is available in lieu of automatic features to ensure adequate CCW flow to essential components.
 - b. If manual action is required for isolation, provide the basis for the time assumed for isolation in order to maintain CCW safety function.
 - c. What is the basis (cool down time of the non-LOCA unit) assumed, which results in four pumps required for operation for a LOCA in one unit and cooldown of the other unit as indicated in FSAR Table 9.3.2-1?
 - d. Verify that the CCW system is designed to provide adequate cooling to both units in the event of a LOCA in one unit and a cooldown of the other unit given any single active failure as required by GDC 5.
 - e. Do post-LOCA recovery procedures call for splitting (train and/or unit separation) of the CCW system? If so, is the split necessary to ensure adequate flow considering all possible single active failures? Discuss the accessibility of the valves requiring manual action under post-LOCA conditions and any limiting time frames for these actions.
2. Provide information (design bases) to support operation of the CCW system given a seismic event and a worst case concurrent single active failure.
3. If your design bases do not postulate a rupture (double ended break) of the nonseismic portion of the CCW system following a seismic event, provide supporting information which provides a basis for assuming the nonseismic piping will not rupture.
4. Given no seismic event, describe how the design of the system can withstand a moderate energy leakage crack without disabling the system. For the nonseismic portion of the system, a single active failure should also be assumed. Your response should provide the basis for any assumed crack size and the time available for operator action to isolate the leak before the CCW system is disabled.
5. In the event that a pipe rupture disables the CCW system for both units, how long will it take to isolate the leak and make the system operable again? In responding to this, consider the following:
 - a) Are the pumps protected against a loss of suction? If so, describe the design in detail.

- b) How long can the loss of CCW be withstood before core damage given the possibility of a RCP seal LOCA without primary coolant makeup capability since the loss of CCW causes a loss of cooling water to the RCP seals and to the charging/safety injection pumps?
- 6. Discuss the control room instrumentation, controls and alarms associated with the CCW system and indicate which are redundant and which are safety grade.
- 7. In light of the events at Byron/Braidwood, identify any plans for re-evaluating the design bases and operation of the CCW system at Zion. If such plans exist, what is the status of that re-evaluation and any planned changes to the system.