

5/17/76

Docket No. 50-331

Iowa Electric Light & Power Company  
ATTN: Mr. Duane Arnold, President  
Security Building  
P. O. Box 351  
Cedar Rapids, Iowa 52406

Gentlemen:

RE: DUANE ARNOLD ENERGY CENTER

A recent investigation at a BWR-4 plant identified a design deficiency that could potentially disable the long term core and containment cooling system following a postulated loss-of-coolant accident (LOCA). This design deficiency involves the potential for RHR (LPCI) pumps to operate in excess of design flow (runout) during a postulated LOCA. Operation of the RHR (LPCI) pumps under this condition could result in damage to the pumps due to cavitation and/or motor overload.

Pump runout conditions could occur in situations where the RHR (LPCI) pumps discharge to flow paths with too little system flow resistance. The following examples describe situations that could potentially result in RHR (LPCI) pump runout conditions and a subsequent reduction or loss of long term heat removal capability:

- a. For BWR-3 and BWR-4 plants with Loop Selection Logic Systems (LSLS), a single failure in the LSLS could result in (1) four LPCI pumps injecting into a broken recirculation loop, or (2) four LPCI pumps injecting into both recirculation loops simultaneously, with one loop broken. In addition, operation with three pumps providing flow (one pump inoperable as allowed per Technical Specifications) to the unbroken loop may closely approach runout conditions.
- b. For BWR-3 and BWR-4 plants with the LPCI modification, the single failure of a recirculation loop discharge valve to close could result in two LPCI pumps injecting into the intact (unbroken) loop at flow rates in excess of design. In addition, the two LPCI pumps which would normally discharge into the broken recirculation loop may also exceed design flow rates.

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DATE ➤					

You are therefore requested, within 30 days of receipt of this letter, to submit the following information:

- a. An analysis of the abovementioned or any other potential RHR (LPCI) pump runout situations which are applicable to your facility to determine if long term heat removal capability could be impaired following a LOCA.
- b. A schedule for making system design modifications if any are necessary.
- c. A description of the testing program that will be used to verify that the required design modifications: (1) adequately protect the RHR (LPCI) pumps from potential runout conditions, and (2) assure that LPCI system core reflood performance is in accordance with the current ECCS analysis for your facility.

One signed original and 39 copies of your answer will be necessary.

This request for generic information was approved by GAO under a blanket clearance number B-180225 (R0072); this clearance expires July 31, 1977.

Sincerely,

George Lear, Chief  
 Operating Reactors Branch #3  
 Division of Operating Reactors

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cc:

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