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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

This letter is to inform you of recent events and conclusion concerning our generic review of Anticipated Transients Without Scram (ATWS) as they relate to Duane Arnold Energy Center.

As you know, upon the publication of our report on ATWS in September 1973, WASH-1270, we sent you a letter on October 11, 1973, requesting analysis of ATWS in compliance with WASH-1270 as it applied to your facility. Your response of October 2, 1974, indicated that you were referencing the General Electric topical report, NEDO-20626, "Studies of BWR Designs for Mitigation of Anticipated Transients Without Scram" and NEDO-10189, "An Analysis of Functional Common Mode Failures in GE BWR Protection and Control Instrumentation." You further stated that NEDO-20626 and 10189 demonstrate that no modifications are required for your facility to mitigate the consequences of ATWS.

You are probably aware that the NRC staff and General Electric personnel have been engaged in an extensive effort to resolve our differences concerning the referenced General Electric topical report. We published our Status Report (Enclosure 1) on December 9, 1975, wherein we stated that additional analyses and justification of the General Electric plant designs are indicated. At the 189th meeting of the Advisory Committee on Reactor Safeguards (ACRS), the ATWS issue and our Status Reports were reviewed in conjunction with the staff and General Electric.

We wrote to General Electric Company (Enclosure 2) requesting that they provide us with acceptable additional analyses and justification of the

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General Electric analysis model as identified in our Status Report and they responded by letter dated July 2, 1976. We have provided further clarification of our goals, bases, and design envelope boundaries to the Atomic Industrial Forum (Enclosure 3). Therefore, we request that you provide, using the guidelines of the status report and the Atomic Industrial Forum letter, by December 31, 1976, the following information:

- a. The additional analyses and justification of the General Electric analysis model identified in the Status Report. (We anticipate that you will reference the generic July 2, 1976, General Electric analysis model.)
- b. Based on these analyses, identification of the design changes needed to assure that the limits specified in WASH-1270 will not be violated following an ATWS event.
- c. A schedule for the submittal of a detailed description of the design changes identified both in the Status Report and in item "b", including a detailed description of the diverse means of interrupting power to the control rod drive mechanisms.
- d. A schedule for the installation of the instruments, controls, and equipment described under items "b" and "c."

In the interim, we believe that a recirculation pump trip similar in design to the trip described in the enclosed Status Report and in General Electric Report NEDO-20626 would significantly limit the consequences of an ATWS event. GE took credit for a recirculation pump trip in the ATWS analysis they provided us and which you referenced. A trip of the recirculation pumps in the event of high reactor vessel pressure has the effect of causing an increase in the moderator voids in the reactor core. A substantial negative reactivity results, and the power and pressure surges that might otherwise occur in the most limiting transient (MSIV closure) are substantially reduced.

We are aware that your plant already has a recirculation pump trip, but additional information is required for us to better understand the implementation of this feature in your design. Please provide us with a detailed description of the design of your recirculating pump trip so that we can determine its adequacy. Also, you should propose Technical Specifications for pressure and level setpoints for your recirculating pumps trips and for surveillance requirements. Please provide us the above information within 30 days of receipt of this letter.

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We have established the above schedules for the submittal of the required information to emphasize our determination to move forward to resolve the ATWS concern and conclude the lengthy deliberations that have taken place among all parties. We expect your efforts will be directed to this same end, and if you have any questions regarding this letter, please let me know.

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

Sincerely,

Original signed by

Victor Stello, Jr., Director  
Division of Operating Reactors

Enclosures:

1. Status Report
2. Letter to General  
Electric Company
3. Letter to Atomic  
Industrial Forum

cc w/o enclosures:

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Harold F. Reis, Esquire  
Lowenstein, Newman, Reis and Axelrad  
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DATE ➤	8/24/76	8/25/76	8/25/76	8/30/76	8/24/76	