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 DENTON, H. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards proposal for satisfying ATWS rule (10CFR50.62).  
 Areas addressed include alternate rad injection, standby  
 liquid control & reactor coolant recirculation pump trip.  
 Mods will be completed prior to Cycle 9 startup.

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Iowa Electric Light and Power Company

October 14, 1985

NG-85-4480

Mr. Harold Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

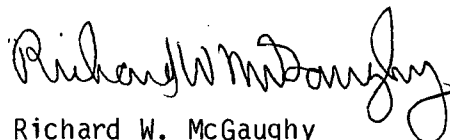
Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Op. License No: DPR-49  
Anticipated Transient Without a Scram (ATWS)  
Response to 10 CFR 50.62 Schedule  
Requirements  
File: A-105, A-224

Dear Mr. Denton:

This letter transmits Iowa Electric's proposal to meet the ATWS equipment requirements of the 10 CFR 50.62 rule. The attached document outlines specifically how we will satisfy the rule in the areas of Alternate Rod Injection, Standby Liquid Control and Reactor Coolant Recirculation Pump Trip. These modifications will be completed prior to our Cycle 9 startup, as described in the attachment.

Please advise us of any questions you may have on this letter or its attachment.

Very truly yours,

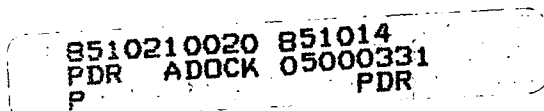


Richard W. McGaughy  
Manager, Nuclear Division

RWM/MJM/ta\*

Attachment: Response to ATWS Rule (10 CFR 50.62)

cc: M. Murphy  
L. Liu  
S. Tuthill  
M. Thadani  
NRC Resident Office  
T. Houvenagle (ICC)  
Commitment Control No. 850107



A055  
/

Response to ATWS Rule 10 CFR 50.62

Requirements: (c)(1) and (c)(2)

Response: Not applicable to Duane Arnold Energy Center (PWRs only)

Requirement: (c)(3): Alternate Rod Injection System (ARI)

Response: The alternate rod injection (ARI) system will be diverse (from the reactor trip system) from sensor output to the final activation device.

This modification will utilize outputs from existing sensors (reactor high pressure and/or reactor low water level), which will be arranged in a 2-out-of-2 logic. Each redundant division will automatically initiate the new scram air header exhaust valves on either high reactor pressure and/or low reactor water level. These new valves are redundant to existing backup scram air header valves. Remote manual activation of new scram air header exhaust valve logic will also be provided in the control room. These modifications are based on the previously accepted Monticello RPT/ARI logic and will be powered from divisional, redundant diesel-backed power. The ARI system is being designed to perform its function in a reliable manner.

Requirement: (c)(4): Standby Liquid Control System (SLCS)

Response: According to the NRC ATWS Rule (10 CFR 50.62), clarified by Generic Letter 85-03, the standby liquid control system (SLCS) must have a minimum flow capacity and boron content equivalent in control capacity to 86 gallons per minute of 13 weight percent sodium pentaborate solution for a 251-inch-diameter BWR vessel.

The Duane Arnold Energy Center has an 183-inch-diameter vessel and, according to the ATWS rule equivalent capacity requirements, must have a flow capacity of 45 gallons per minute of 13 weight percent solution. The existing SLCS has two pumps, each with a design capacity of 28 gallons per minute. The existing Technical Specification requirement for each pump is 26.2 gallons per minute. The ATWS flow requirements will be met by the simultaneous operation of both pumps to provide a nominal 56 gallons per minute of 13 weight percent solution to the present injection location. The existing control room pump controls, which are powered from divisional, redundant diesel-backed power, will be modified to allow for dual pump operation.

Automatic initiation of the SLCS, which is required for plants granted a construction permit after July 26, 1984 or for plants granted a construction permit prior to July 26, 1984 that have already been designed and built to include this feature, is not applicable to the Duane Arnold Energy Center. The SLCS will continue to be manually initiated by licensed personnel in the

control room. The SLCS modifications will be designed to perform their function in a reliable manner.

Requirement: (c)(5): Recirculation Pump Trip System (RPT)

Response: The reactor coolant recirculation pumps will be provided with an automatic trip circuit that will initiate on conditions indicative of an ATWS (reactor high pressure and/or reactor low water level).

The existing reactor coolant recirculation pump circuits utilize a 1-out-of-2 logic to divisionally trip the drive motor breaker based on receipt of reactor high pressure and/or reactor low water level. The ATWS modification will consist of rewiring the sensor outputs to a 2-out-of-2 logic which will provide redundant tripping of both end-of-cycle (EOC) recirculation pump trip breakers on detection of reactor high pressure and/or low water level. The RPT/ARI logic will utilize existing spare trip coils on the EOC recirculation pump trip breakers to maintain diversity from the EOC pump trip function for turbine trip or generator load rejection events.

In addition, manual initiation of the RPT/ARI logic breakers will also be provided in the control room. These modifications are based on the Monticello RPT/ARI logic and will be powered from divisional, redundant diesel-backed power. The equipment will be designed to perform its function in a reliable manner.

Implementation: (d) Proposed Schedule

We plan to complete the above modifications prior to the Cycle 9 startup scheduled for the spring of 1987. The Cycle 8/9 refueling outage is our second refueling outage after July 26, 1984, and, therefore, meets the schedule requirements of 10 CFR 50.62.