

2/27/76

Docket No. 51-331

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

Gentlemen:

RE: Duane Arnold Energy Center

DISTRIBUTION:

Docket  
NRC PDR  
Local PDR  
ORB #3 Rdg  
KRGoller  
TJCarter  
GLear  
CParrish  
WPaulson  
OELD  
OI&E (7)  
TBAbernathy  
JRBuchanan  
ACRS (16)

As a result of a recent additional assessment of the structural integrity of the Mark I containment system used in your reactor facility, members of our respective technical staffs met in Bethesda on February 26, 1976. This letter will confirm the results of these discussions and the conclusions reached by the NRC staff subsequent to the meeting.

On January 28, 1976, the Mark I owners group specified that the torus support downward load strength ratios were based on an elastic analysis. Ratios around 1.0 were not of great concern to you because you believed that a redistribution of loads would occur and that these factors would be reduced when an elastic-plastic analysis was later performed. On those facilities with strength ratios greater than 0.9, the NRC staff requested further information, which we are currently evaluating.

On February 19 and 20, 1976, a more detailed discussion of the above technical points occurred. After studying details of the stress distribution from Bechtel's computer output, it is our judgment and your consultants agree that redistribution of loads may not be significant for the welds at the top of the torus columns. Therefore, the margin of safety at these welds are lower than those for other Mark I components.

Because of this reduced margin, the meeting in Bethesda was called to discuss your plans to promptly restore adequate margins of safety for the structure. You described and discussed with our staff various operating modifications which would reduce the loads, such as use of an increased drywell pressure and decreased torus water level. After discussing such actions and the length of time required to provide enhanced safety margins using the operational actions, you and other members of the Mark I owners'

OFFICE >

SURNAME >

DATE >

group indicated that you would enhance safety margins by pressuring the containment to establish a differential pressure of at least 1 psi between the drywell atmosphere and torus unless prior to return of your plant to operation other satisfactory modifications were made.

Our technical staff has assessed this proposal and agree with your technical representatives that the establishment of a differential pressure of at least 1 psi will provide a reduction in potential loads during a postulated loss of coolant accident and an associated restoration of the margins of safety so that the margin of safety is about a factor of two.

I am pleased with the prompt response by the Mark I owners' group to our concern that safety margins be restored in a prompt fashion. This letter, therefore confirms our discussions of yesterday that, prior to returning your plant to operation, you will establish a differential pressure of a minimum of one psi between the drywell atmosphere and the torus vapor space and that this differential pressure will be maintained whenever the reactor is in operation, unless prior thereto other modifications to enhance safety margins for the structure have been approved by the NRC and have been installed. This will respond to our directive of yesterday that safety margins for the structure be enhanced promptly.

Sincerely,

Ben C. Rusche, Director  
Office of Nuclear Reactor Regulation

cc: See next page

OFFICE ➤	DOR:ORB42 <i>SRV</i>	OELD	SS:DIR <i>SRV</i>	DOR:DIR <i>SRV</i>	NRR:DIR <i>P</i>
SURNAME ➤	DLZiemann:esp	JSCinto	RHeineman	VStello	BCRusche
DATE ➤	2/27/76	2/ /76	2/27/76	2/27/76	2/ /76

Iowa Electric Light & Power Company - 3 -

cc:

Jack R. Newman, Esquire  
Harold F. Reis, Esquire  
Lowenstein, Newman, Reis and Axelrad  
1025 Connecticut Avenue, N. W.  
Washington, D. C. 20036

Cedar Rapids Public Library  
426 Third Avenue, S. E.  
Cedar Rapids, Iowa 52401

Office for Planning and Programming  
523 East 12th Street  
Des Moines, Iowa . 50319

Mr. Dudley Henderson  
Chairman, Linn County  
Board of Supervisors  
Cedar Rapids, Iowa 52406