DEC 2 9 1976

DISTRIBUTION:
Docket
NRC PDR
Local PDR
ORB#3 Rdg
TJCarter
GLear
CParrish
JGuibert
JShea
OELD
OI&E (3)
DEisenhut
TBAbernathy
JRBuchanan
ACRS (16)
File

Docket No. 50-331

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

Gentlemen:

RE: DUANE ARNOLD ENERGY CENTER

We have completed our review of the information which you submitted on June 18, 1976 and December 14, 1976, in response to our letters of May 17, 1976 and August 18, 1976, regarding the potential for Low Pressure Coolant Injection (LPCI) pump damage at your facility due to pump operation in excess of design flow (runout) following a postulated loss of coolant accident (LOCA).

As indicated in the enclosed evaluation, we have concluded that your facility design provides sufficient safety margin to preclude LPCI pump damage following a LOCA due to either pump cavitation or pump motor overload. In addition, we have concluded that the short term load limits of your emergency diesel generators would not be exceeded during potential LPCI pump runout conditions.

Sincerely,

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

Enclosure:
Safety Evaluation

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

Misaj 4 GD

OFFICE ➤			ORB#3	ORB#3	ORB#3	
SURNAME ➤			JGuibert:acr	JShea	GLear	
DATE ➤			12/ 28 /76	12/ 28 /76	12/29 /76	

Evaluation of the Potential For Low Pressure Coolant Injection (LPCI) Pump Damage Due to Operation In Excess of Design Flow During a Postulated Loss of Coolant Accident (LOCA)

FACILITY NAME: Duane Arnold Energy Center

DOCKET NUMBER: 50-331

We have completed our review of the information submitted by Iowa Electric Power and Light Company regarding the potential for LPCI pump damage at Duane Arnold Energy Center due to pump runout during short term cooling following a postulated LOCA. Iowa Electric Light and Power Company has provided an analysis which demonstrates that adequate margin exists between Available and Required Net Positive Suction Head (ANPSH and RNPSH) to prevent LPCI pump damage due to cavitation, considering the following conservative assumptions: (1) the LOCA piping break occurs in the recirculation piping at the LPCI injection point (i.e. minimum flow resistance with maximum flow and, therefore, maximum potential for pump cavitation damage); (2) worst single failure (i.e. failure which results in the minimum number of pumps pumping through common piping directly to the break); (3) no credit taken for post-LOCA containment pressurization; (4) highest suppression pool temperature (as predicted 10 minutes after a design basis LOCA); and (5) one pump inoperable at the time of the LOCA. We find this analysis to be acceptable.

We have reviewed the information submitted regarding the maximum LPCI pump motor current which would be experienced during the worst-case LPCI pump runout condition and have concluded that pump motor damage would not result. We have also reviewed the emergency diesel generator loading requirements including the higher motor current requirements resulting from the worst-case LPCI pump runout condition and have concluded that the loadings are within the short term diesel generator load limit.

Date: December 29, 1976