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TO: Mr. George Lear

FROM: Iowa Electric Light & Power Co.
Cedar Rapids, Iowa
Lee Liu

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12/14/76DATE RECEIVED
12/17/76

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DESCRIPTION

ENCLOSURE

Ltr. notorized 12/14/76....w/attached....
furnishing Potential RHR (LPCI) Pump Runout
Evaluation Supplement.

(2-P)

PLANT NAME:
Duane Arnold

ACKNOWLEDGED

DO NOT REMOVE

SAFETY

FOR ACTION/INFORMATION

ENVIRO 12/20/76

RJL

ASSIGNED AD:		ASSIGNED AD:
BRANCH CHIEF:	Lear (6)	BRANCH CHIEF:
PROJECT MANAGER:	Shea	PROJECT MANAGER:
LIC. ASST. :	Parrish (LTH.)	LIC. ASST. :
	VASSALLO	

INTERNAL DISTRIBUTION

REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY &
NRC PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
I & E (2)	SCHROEDER	BENAROYA	DENTON & MULLER
OELD		LAINAS	
GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
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CASE	KNIGHT		BALLARD
HANAUER	SIHWEIL	OPERATING REACTORS	SPANGLER
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			SITE TECH.
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BOYD	ROSS	EISENHUT	STAPP
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HOUSTON	ROSZTOCZY	BAER	
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ASLB:	CONSULTANTS:	
ACRS 16 CYS HOLDING/SENT:	Car. B. (12/20/76)	

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mud
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IOWA ELECTRIC LIGHT AND POWER COMPANY

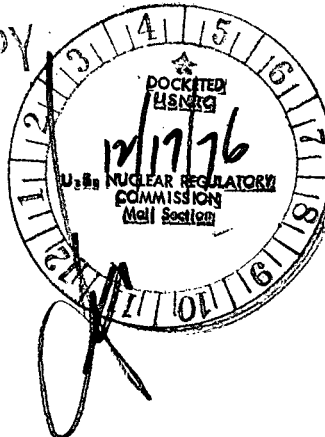
General Office
CEDAR RAPIDS, IOWA

December 14, 1976
IE-76-1961

LEE LIU
VICE PRESIDENT - ENGINEERING

REGULATORY DOCKET FILE COPY

Mr. George Lear, Chief
Operating Reactors Branch 3
Division of Operating Reactors
Nuclear Regulatory Commission
Washington, D.C. 20555



Dear Mr. Lear:

The enclosed is submitted in response to verbal questions from your staff concerning our responses of June 18, 1976 and September 24, 1976.

This additional response does not change our previous conclusion. The Duane Arnold Energy Center will not experience RHR pump cavitation or pump runout resulting in damaging motor overloading following a postulated LOCA.

Three signed originals and 37 copies of this letter and attachment are transmitted herewith. This letter and its attachment are true and accurate to the best of my knowledge and belief.

Iowa Electric Light and Power Company

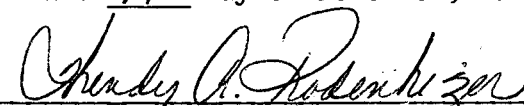
By: 

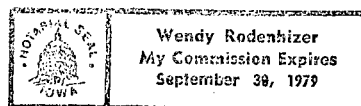
Lee Liu
Vice President, Engineering

LL/KAM/ms
Attachment

cc: K. Meyer
D. Arnold
R. Lowenstein
J. Shea (NRC)
L. Root
File A-107
A-225
E-17

Subscribed and sworn to before me
on this 14th day of December, 1976.


Notary Public in and for the State
of Iowa.



12785

POTENTIAL RHR (LPCI) PUMP
RUNOUT EVALUATION SUPPLEMENT

In addition to those cases evaluated in our June 18, 1976 and September 24, 1976 submittals, we have evaluated potential runout for condition 2 with three pumps operating rather than four and a double ended line break on the "A" recirculation pump discharge pipe. The same conservatisms which were used to perform previous analyses were also used in evaluating the three pump case of condition 2 (condition 2A). The results of the evaluation indicate that the RHR pumps will remain functional with three pumps operating in condition 2. The analyses assumed that the limiting pump, pump "C", was not the one taken out of service. During runout conditions the "C" pump would have six feet of available NPSH above the approximately 14 feet which it requires. Hence, there would be no pump cavitation. The "C" pump motor current would increase to 120% of rated.

The increase in motor current in condition 2A would result in increased diesel generator loading. However, the increase would not exceed 10 1/2% (55KW) per pump. This is below the 100 KW per pump increase used to evaluate the four pump case of condition 2. Therefore, the load summary previously submitted is still applicable and the diesel generators would remain within rated conditions.

The following table for this condition supplements our previous analyses:

<u>RHR (LPCI) PUMP NET POSITIVE SUCTION HEAD</u>					
<u>Parameter</u>	<u>RHR Injection Pumps</u>				<u>Comment</u>
	<u>A</u>	<u>C</u>	<u>B</u>	<u>D</u>	
<u>Condition No. 2A</u>					
Flowrate, GPM	6590	6794	NA	7050	No cavitation
Total head, ft	206	206	NA	137	
Avail. NPSH, ft.	22.5	20.2	NA	23.6	
Required NPSH, ft.	14	14	NA	17	