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APR 7 1982

Docket No.: 50-358

Mr. Earl A. Borgmann
Vice President, Engineering
The Cincinnati Gas & Electric Company
P. O. Box 960
Cincinnati, Ohio 45201

Dear Mr. Borgmann:

Subject: "Fast Scram" Hydrodynamic Loads on Control Rod Drive Systems

We were recently informed by a vendor of control rod drive (CRD) systems of a potential reportable condition applicable to boiling water reactors (Enclosure). Specifically, this vendor indicates that its analysis of the hydrodynamic loads in the piping and on the supports of a particular CRD system for a "worst case" condition resulted in structural loads which were larger than some of the previous design loads for this system. These larger loads result from a rapid actuation of the CRD.

The conditions assumed by this vendor for its "worst case" calculation of the hydrodynamic loads were: (1) a design basis opening time of 20 milliseconds for the inlet line scram valve; and (2) a scram during the start-up phase of the plant with no pressure in the reactor vessel. The vendor also stated that its modeling of the CRD system may not be sufficiently representative of the actual system to accurately calculate hydrodynamic loads.

This matter has been previously discussed with the members of Licensing Review Group II (LRG II). This group agreed to pursue this issue on their individual dockets. Accordingly, we will consider this matter to be an open item on your docket until we can resolve this issue.

Our concern in this matter is that the hydrodynamic loads in the CRD system for your facility may not have been properly evaluated. Accordingly, we request that you provide the following information for your facility.

1. The design basis opening time for the inlet line scram valve.
2. An evaluation of the hydrodynamic loads in your CRD system resulting from actuation of the inlet line scram valve using the design basis opening time specified in Item 1.

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DATE ▶

Mr. Earl A. Borgmann

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3. A description of the conditions and configurations of the plant which result in the maximum hydrodynamic loads in the CRD system.
4. A statement regarding the appropriateness of the mathematical model used to calculate the hydrodynamic loads in the CRD system resulting from a scram.
5. A comparison of the hydrodynamic loads evaluated in Item 2 with the present design basis loads for the CRD system.

In the event that the hydrodynamic loads calculated for your facility exceed the present design basis structural loads for the CRD system, indicate which components are affected and submit a proposed plan for structurally reinforcing the affected components.

Please amend your application to provide the above requested information. Our review schedule is based on the assumption that the additional information will be available for our review by August 1, 1982. If you wish clarification of the requests or if you cannot meet these dates, please telephone the Licensing Project Manager, I. Peltier, within 7 days after receipt of this letter.

Sincerely,

Original signed by:
B. J. Youngblood

B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing

Enclosure:
As stated

cc w/encls.: See next page

OFFICE	DL:LB#1	DL:LB#1					
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DATE	4/7/82	4/7/82					

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ENCLOSURE

Reactor Controls, Inc.



October 14, 1981

Director Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: A Potential Reportable Condition

Gentlemen:

The purpose of this letter is to bring to the attention of your office and the other organizations listed on an attachment to this letter, a condition that Reactor Controls believes may present a Potential Reportable Condition affecting safety of the Control Rod Drive Hydraulic System in the Boiling Water Reactor plants for which Reactor Controls supplied portions of the system. The item that causes our concern is as follows.

While performing the stress analysis of the piping and supports of the system for a BWR-6 unit, we were required to consider hydro dynamic loads. To do so RCI requested the opening time of the Inlet Line Scram Valve. The reply stated the time to be twenty milliseconds. Using this opening time, the resultant hydro dynamic load required modifications to the design of the pipe supports. This was on the basis of using the worst case, ie, during a start up scram when there is no pressure in the reactor vessel, resulting in a greater differential pressure from the accumulator.

At that time we thought that the "Fast Scram" feature of the BWR-6 was introducing a new load condition on the system. But upon further inquiry we have been informed by General Electric Company that the same valve opening time applies to earlier units of the Boiling Water Reactor also.

Reactor Controls has fabricated and installed the piping and supports for many Control Rod Drive Hydraulic Systems and designed those supports without considering Hydro Dynamic loads due to the scram function.

Our concern is that this additional load may represent a potential safety consideration for those plants whose design did not include it. Consequently we feel our obligation is to inform your office. By copy of this letter we are also informing those utilities constructing or operating plants for which Reactor Controls has provided portions of the Control Rod Drive Hydraulic System.

However we are also aware of, and wish to point out, that the Control Rod Drive Hydraulic System has many years of successful operation at all plants without

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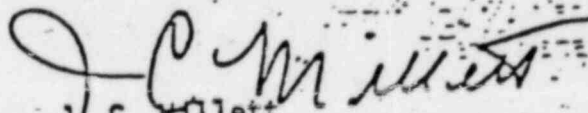
Reactor Controls, Inc.

October 14, 1981

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any reported difficulties from this load. Our findings are the result of analysis using computer programs that may not parallel the system closely enough to represent the actual condition. But we are taking the opportunity by this letter to inform you of the facts as we presently understand them.

Very truly yours,


J. C. Millett
Vice President
REACTOR CONTROLS, INC.

Attachment

JCM:pk

Copies sent to:

Mississippi Power & Light Company
Post Office Box 756
Port Gibson, Mississippi 39150
Attn: Mr. George Rogers

Bechtel Power Corporation
15740 Shady Grove Road
Gaithersburg, Maryland 20760
Attn: Mr. Adrian Zaccaria,
Project Engineer

Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101
Attn: Mr. M.J. Cooney
Supt. of Nuclear Generation

Bechtel Power Corporation
Post Office Box 3965
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LILCO.
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Attn: Mr. W.J. Museler

Commonwealth Edison Company
Post Office Box 767
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Attn: Mr. B.R. Shelton

Stone & Webster Engineering Corporation
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Attn: Mr. C. Zappile

Send Letter to:
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Lycoming, New York 13093

Pilgrim Unit #1
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Plymouth, Massachusetts 02360
Attn: Mr. Peter O'Brien

Vermont Yankee
Post Office Box 157
Vernon, Vermont 05354
Attn: Mr. Fred Burger
QA Coordinator

Millstone Unit #1
Northeast Utilities Service Company
Post Office Box 270
Hartford, Connecticut 06101
Attn: Mr. Dick Werner

River Bend
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3 Executive Campus
Post Office Box 5200
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Attn: Mr. W.J. Cahill
Sr. Vice President-RBNG

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Project Manager

Hatch

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Attn: Mr. M. Manry
Plant Manager

TVA-Stride

Tennessee Valley Authority
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Chattanooga, Tennessee 37401
Attn: Mr. J. Marcel Anderson
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Browns Ferry - TVA

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Manager of Licencing & Permits