IOWA ELECTRIC LIGHT AND POWER COMPANY

General Office CEDAR RAPIDS, IOWA

LEE LIU SENIOR VICE PRESIDENT - ENGINEERING May 1, 1979 IE-79-669

50-331

Central files

AD 2-

Mr. James G. Keppler, Director Office of Inspection and Enforcement U.S. Nuclear Regulatory Commission Region III 799 Roosevelt Road Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

This letter is intended as a response to IE Bulletin No. 79-04 regarding incorrect weights for swing check valves. The attachment gives the responses to the action items listed in the bulletin.

Very truly yours,

Larry D. Root Lee Liu for

Senior Vice President, Engineering

LL/RFS/sh

cc: R. Salmon D. Arnold H. Rehrauer R. Lowenstein R. Clark (NRC) Office of Inspection and Enforcement File: A-101a

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ATTACHMENT

Action Item 1

List all Seismic Category I piping systems (or portions thereof) where 3, 4 or 6 inch diameter Velan swing check valves are installed or are scheduled to be installed.

Response

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There are two Seismic Category I piping systems where 3" Velan swing check valves are installed:

- a. HPCI, Turbine Exhaust Vacuum Breaker line number 2"-HLE-6 and line number 3"-HLE-6 which is between the two valves.
- b. RCIC, Turbine Exhaust Vacuum Breaker line number 2"-HLE-5 and line number 3"-HLE-5 which is between the two valves.

Other sizes such as 4" and 6" diameter Velan check valves are not installed. There is no schedule for future installation of any Velan check valves.

Action Item 2

Verify for all those systems identified in Item 1 above that correct check valve weights were used in the piping analysis. Explain how and when the correct valve weights were determined.

Response

The weight of the 3" check value is shown on the vendor print in IELP's document file as 95 lb. This value drawing is dated Mar. 26, 1974. Since this date is subsequent to 1973, and the IE Bulletin No. 79-04 indicates that after 1973 correct weights were quoted by Velan, the 95 lb. is considered to be the correct weight.

IELP requested Bechtel Power Corporation to check the piping analysis with special attention to the above check valve weights. BPC's reply and conclusions provide the balance of the response to this Action Item and to Action Items 3, 4 and 5.

The section of the RCIC and HPCI lines of interest are composed of a 2" pipe with a small section (approximately two feet) of 3" pipe. The 3" Velan check valves are within this 3" pipe section. The RCIC and HPCI lines of interest were seismically supported using the modified

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spectrum approach as described in Bechtel's Topical Report, "Seismic Analysis of Piping Systems", BP-TOP-1, paragraph 2.3.2.1. Per this method, pipe supports are located in the vicinity of a concentrated mass such as a valve or flange. The pipe support designs are sized to be capable of supporting the concentrated mass (i.e. the Velan check valve).

Action Item 3

If incorrect valve weights were used, explain what actions have been taken or are planned to re-evaluate the piping systems affected.

Response

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Since the exact valve weight was not required in the pipe support method described in Action Item 2, BPC seismically analyzed the as-built pipe system using the weight for the 3" Velan check valve as given in IE Bulletin No. 79-04 for the post 1973 Velan Engineering Corp. estimate (i.e. 100 lbs.). This analysis indicates that the piping is stressed within the Code allowable stress limits. In addition the support loads are within the pipe support design capacity.

Action Item 4

Specify for all the affected systems identified in Item 1 whether modifications were or are required to the piping systems or their supports because of changes in valve weight. Also, include the basis for this determination. For those systems in which the actual valve weight is greater than the design weight provide a summary of stresses and loads and their allowable limits for the piping and its supports.

Response

As explained in Action Item 3, the system design adequacy is not impaired using the valve weights given in IE Bulletin No. 79-04. No modification is required for the piping or the piping supports.

Action Item 5

Identify the analytical technique including identification of any computer codes used to determine the stresses indicated in Item 4.

Response

The seismic analysis of the piping was performed using Bechtel computer code ME-101 - "Linear Elastic Analysis of Piping Systems"

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