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September 6, 1985

Mr. Charles E. Rossi, Chief
Events Analysis Branch
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: IE Draft Bulletin: Motor-Operated Valve
Failures During Plant Transients Due To
Improper Switch Settings

Dear Mr. Rossi:

This is in response to your letter to Arthur Bivens of August 12, 1985, in which you requested comments on the subject IE Draft Bulletin. The AIF Committee on Power Plant Design, Construction and Operation has reviewed the bulletin and offers the following comments:

General Comments

It appears that this IE Draft Bulletin is in response to NRC Staff actions resulting from the investigation of the June 9 Davis-Besse event. Action item 6.(i) from Mr. Dircks' Memorandum of August 5, 1985, requires NRC's AEOD office to conduct a review of failure of safety-related motor-operated valves and provide an assessment of pertinent failure modes affecting valve performance under design basis conditions. Action item 6.(j) requires NRC's IE office to determine if an NRC Bulletin is warranted. We believe the Draft IE Bulletin is premature in light of item 6.(i) and that generic action on motor-operated valves should be integrated with the other Davis-Besse investigation matter.

The program outlined in the draft bulletin has the potential to grow into a large program and should be tested as a backfit with a cost-benefit analysis.

While we maintain the Draft IE Bulletin is broad and should be scaled down, the following comments are on its present content.

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Charles
Rossi

Specific CommentsPage 3 - Actions for All Holders of Operating Licenses or Construction Permits

The first paragraph of this section states, "For all motor-operated valves that are required to be operability tested in accordance with 10CFR 50.55 a (g), develop and implement a program to ensure that valve and operator switches are set and maintained properly."

The scope described here is too broad in that it addresses all safety-related gate valves and the service on many is not such that this is justified.

Estimates of resources required to review and revise the design basis are approximately 4000 man hours per reactor plant.

Page 3 - Action Item (a)

This paragraph states, "Review and revise as necessary the design basis for the operation of each valve. Unless otherwise justified, the design basis shall include both opening and closing the valve with the most severe loading expected during design basis events."

Page 3 - Action Item (b)

This paragraph states, "Using the results from a above, review and revise as necessary the proper settings for all switches (e.g., torque, torque bypass, position limit, overload) for each valve operation (opening and closing)."

Clarification of this item is necessary. This item implies that all valves contain adjustable torque bypass switches. This is not the case. Many valve bypass torque switches operate on a common shaft with limit switches, therefore, separate adjustment is not possible. Further, some plants have incorporated design changes to the valve opening logic circuitry which incorporates a hardwired bypass around both the

torque and bypass switches. This design change eliminates the need to set or adjust these switches and provides an uninterruptable opening response to actuation. We have an estimate of 2500 man hours to review and revise proper settings for switches on 140 valves and 100 man hours per valve if any settings need to be changed.

Page 3 - Action Item (c)

This item requires demonstrating that the settings from item b are correct through testing the valves under most severe loading conditions. It further mentions that prototypical testing may be substituted for individual valve tests where justified, but each valve must be stroke tested to verify the settings from item b.

Valve testing at most severe loadings determined from design bases, with few exceptions, would be difficult if not impossible to create without system modifications. In many cases testing at these unusual conditions could be detrimental to downstream plant components and systems through effects such as water hammer. Associated plant systems would be subjected to unnecessary flash hydraulic cycling creating an unreviewed safety issue.

A design analysis should be considered to verify valve operability under severe loadings. Verification or testing of opening limit switch settings to prevent backseating could be performed on a once/cycle basis or following maintenance.

It is suggested the NRC allow a provision to employ an alternative approach to perform in situ testing of design basis loading without deliberately overstressing the plant components and lifting safety relief valves. There is disagreement with the need to stroke test each valve to verify switch settings. Therefore, an acceptable alternative should be delineated and acceptable prototypical testing should be defined.

It is suggested that the NRC should allow each individual utility to review and revise as necessary their existing program to ensure that valve and operator switches are set and maintained properly.

We have an estimate of \$1.5 million for the testing of 140 valves. However, this figure could be much higher if a static deflection test was not allowed.

Page 4 - Action Item (d)

This item states, "Prepare or revise procedures to ensure that correct switch settings are utilized throughout the life of the plant."

We have an estimate of 2500 man hours to prepare or revise procedures.

Page 4 - Action Item (e)

Part 1 of this item states, "For plants with an OL, the schedule shall ensure that these items are completed within two years from the date of this bulletin."

Two years from the date of the bulletin is overly restrictive considering the amount of engineering analysis and valve testing required. It is recommended the schedule be completed by the end of the second refueling outage following receipt of the bulletin.

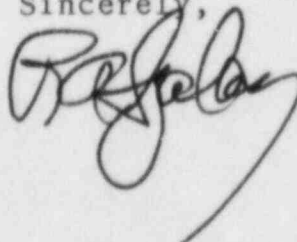
Page 4 - Action Item (f)

The last sentence of this item states, "This report shall be submitted to the NRC within 60 days of completion of the program."

It is suggested the submittal of a written report be completed within 180 days instead of 60 days since the report may be a major effort.

Members of the AIF Committee on Power Plant Design, Construction and Operation are willing to arrange a time to meet with NRC representatives to discuss this matter further.

Sincerely,



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