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June 2, 1982

United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

ATTENTION: Mr. R. C. Haynes
Administrator

SUBJECT: Beaver Valley Power Station - Unit No. 2
Interim Report - Motor Operated Gate Valves
Docket No. 50-412
Significant Deficiency Report No. 80-06

Gentlement:

This letter is Interim Report No. 4 concerning Significant Deficiency 80-06.

Interim Report No. 3 (2DLC-4333) on this subject, dated November 16, 1981, indicated that closure problems may exist in all Westinghouse Electro-Mechanical Division (W-EMD) manufactured motor operated valves, several of which are scheduled for installation at Beaver Valley Unit No. 2.

Since that time, Westinghouse Field Change Notice, FCN DMWM-10544, has implemented the modification of 37 Westinghouse supplied gate valves. Another report will be issued by November 1, 1982, when work per FCN DMWM-10544 modifications of W-EMD valves is expected to be complete.

DUQUESNE LIGHT COMPANY

BY E. J. Woolever
E. J. Woolever
Vice President

JMM/wjs
Attachment

cc: Mr. G. Walton, NRC Resident Inspector (w/attachment)
Ms. E. Doolittle, Project Manager (w/attachment)

IE27

INTERIM REPORT NO. 4
SIGNIFICANT DEFICIENCY 80-06
WESTINGHOUSE MOTOR OPERATED GATE VALVES

1. SUMMARY

IE Bulletin No. 81-02, Supplement No. 1, stated that closure problems could be anticipated with the entire line of Westinghouse Electro-Mechanical Division (W-EMD) manufactured motor operated gate valves. Several of these valves are scheduled for installation on Beaver Valley Unit No. 2.

2. IMMEDIATE ACTION TAKEN

For those valves which were incapable of meeting functional requirements, Westinghouse began to evaluate several corrective measures which would ensure valve operability under specified system conditions, taking into account closing or opening functions and operating differential and line pressures as they apply to Beaver Valley Unit No. 2.

3. DESCRIPTION OF THE DEFICIENCY

The gate valve closing problem first surfaced when several valves failed to fully close against high flow and high differential pressure conditions during plant start-up testing at the Almaraz Nuclear Station in Spain and during the Electric Power Research Institute Power Operated Relief Valve (EPRI PORV) block valve tests at Duke Power's Marshall Station. Typically, these valves operated through 75 percent of their full disc travel leaving about 5 percent of the flow passage unsealed. Subsequent strain gage testing showed the stem thrust loads required to fully close the valve to be 50 percent larger than original design calculations predicted.

4. ANALYSIS OF SAFETY IMPLICATIONS

Some of the potential safety consequences of the valves' failure to fully close against differential pressure are as follows:

Potential Consequences

1. (PORV Block Valves) Potential incomplete isolation of pressurizer PORV.

2. Potential cavitation of a centrifugal charging pump or safety injection pump due to operation beyond maximum runout flow.

3. Potential inability to perform post-accident containment isolation.

4. Potential degradation of safety injection flow below values given in the safety analysis report.

5. Potential inability to isolate Reactor Coolant System pressure boundary.

5. CORRECTIVE ACTION TO REMEDY THE DEFICIENCY

A. FCN DMWM-10544

Westinghouse Field Change Notice (FCN) DMWM-10544, dated April 28, 1982, implements the modification of 37 Westinghouse supplied gate valves. The valve modifications will involve either a torque switch adjustment or a torque control to limit control closure adjustment accompanied by a gear ratio change on the valve operator. This is required in order to ensure valve operability under specified system conditions taking into account closing or opening functions and operating differential and line pressures.

B. FCN DMWM-10545

Westinghouse FCN DMWM-10545, dated April 28, 1982, implements the modification of the following three Westinghouse 3" motor operated valves:

1. BV-2 Westinghouse Loc. No. 8000A, Mark No. 2RCS-MOV-535
2. BV-2 Westinghouse Loc. No. 8000B, Mark No. 2RCS-MOV-536
3. BV-2 Westinghouse Loc. No. 8000C, Mark No. 2RCS-MOV-537

Beaver Valley Unit No. 1 requested the transfer of these three valves, complete with motor operators, for application as power operated relief valve (PORV) block valves in design change package 522 (DCP-522). These valves are excess Beaver Valley Unit No. 2 material and were on Unit No. 2 Quality Control (QC) hold due to Nonconformance and Disposition Report No. 6380 (N&D #6380) and for environmental qualification documentation reasons.

The required rework of these valves has been accomplished per disposition of N&D #6380 by Westinghouse supervision under the Westinghouse approved QA program, per Westinghouse Certificate of Conformance, P.O. 173659, dated April 9, 1982. Mr. N. R. Tonet has acknowledged the Westinghouse rework by signing their Certificate of Conformance.

The above actions have resulted in the lifting of all Unit No. 2 QC holds for the three valves mentioned above. In addition, they allow the material transfer of the valves to take place and relieve Unit No. 2 from any future responsibilities for the valves. Unit No. 1, as part of the material transfer, has assumed technical responsibility for the valves, including the rework performed by Westinghouse and environmental qualification responsibility for the valves to Unit No. 1 qualification envelopes.