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November 20, 1980

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

REGISTRATION SERVICES
FINCH

NOV 21 11 47

ATTENTION: Mr. Boyce H. Grier, Director

SUBJECT: BEAVER VALLEY POWER STATION - UNIT NO. 2
Docket No. 50-412
3" MOV Gate Valves in Safety Injection and Chemical and Volume
Control System - Significant Deficiency 80-06

Gentlemen:

Westinghouse has notified us that problems were encountered during preoperational testing at a domestic station and at a foreign station of three-inch gate valves manufactured by their Electro-Mechanical Division. Beaver Valley Unit No. 2 has received several of the subject valves as part of the NSSS scope of supply. This problem was reported to your office on October 29, 1980 as a significant deficiency.

An investigation into the above valve deficiency is currently underway. Pursuant to the requirements of 10CFR50.55(e), enclosed is "Interim Report on 3" MOV Gate Valves in Safety Injection and Chemical and Volume Control System at Beaver Valley Power Station - Unit No. 2." We plan to issue another interim report on June 1, 1981.

DUQUESNE LIGHT COMPANY

By E. J. Woolever
E. J. Woolever
Vice President

Enclosure

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Interim Report on 3" MOV Gate Valves in Safety Injection
and Chemical and Volume Control System at
Beaver Valley Power Station - Unit No. 2

SUMMARY

Problems were encountered during pre-operational testing at a domestic station and at a foreign station of three-inch MOV Gate Valves manufactured by the Westinghouse, Electro-Mechanical Division. These valves are classified as "active" valves (i.e., mechanical operation is required to accomplish a safety function and are utilized in the Chemical and Volume Control System and the Emergency Core Cooling System). The tested valves failed to completely close during preoperational test conditions which are less severe than the equipment specification design conditions.

IMMEDIATE ACTION TAKEN

Reject tags have been placed on the valves identified by Westinghouse and listed in the attachment, "Active" Valve Applications.

DEFICIENCY

During pre-operational testing at a domestic station and at a foreign station, problems were encountered when testing the Westinghouse Electro-Mechanical Division manufactured three-inch gate valves, Class I Model 3GM88, 1500 lb. class. Westinghouse furnishes this valve to its customers in Class 1, 2 and 3 applications. In the Class 2 and 3 applications the Identification Number, only, is changed to GM78 and GM58, respectively. The tested valves failed to completely close under pre-operational test conditions (i.e., approximately 2700 psi as flow approaches zero) which are less severe than the equipment specification design conditions (i.e., 2750 psi as flow approaches zero). The valves stroked to significantly restrict flow, but the full stroke was not accomplished to trip the "closed" position indication contacts in the motor operator or to seat the valve disc within the valve body.

In addition to the Model 3GM88, the later redesign version, Model 3GM99, may be subject to the same problem.

It has been determined that several of these valves are classified as "active" valves (i.e., mechanical operation is required to accomplish a safety function and are utilized in the Chemical and Volume Control System and the Emergency Core Cooling System. The functional requirements for "active" valves include closure under operating pressure/flow conditions. Since the subject valves are utilized in "active" applications on Westinghouse non-operating plants, the subject failure to completely close is considered reportable to nonoperating plants under title 10CFR50.55(e).

As part of this review, it was determined that the functional requirement pressure/flow condition under which the valves must close may be significantly less than the preoperational test and equipment specification conditions under which the subject valves failed to close. Consequently, it is possible that complete closure of the subject valves may be accomplished under actual operating conditions even though complete closure was not accomplished under preoperational test conditions. For example, the operating conditions under which one valve at the domestic station is required to function is approximately 1200 psi as flow approaches zero, instead of the pressure conditions at which the valve failed to close.

ANALYSIS OF SAFETY IMPLICATIONS

Analysis of the safety implications will be provided in the final report.

CORRECTIVE ACTION TO REMEDY DEFICIENCY

The corrective action to remedy the deficiency is currently under investigation and will be provided in the final report.

ADDITIONAL REPORTS

An interim report will be issued on June 1, 1981. The date for submittal of the final report will be indicated at that time.

POOR ORIGINAL

"ACTIVE" VALVE APPLICATIONS

Valve Function	Valve Location Number	Maximum ΔP (psi) as Flow Approaches Zero	
		Equipment Specification	Functional Requirement
<u>CHEMICAL AND VOLUME CONTROL SYSTEM</u>			
Charging Line Isolation	8107	2750	2700
	8146		
Charging Pump Mini-flow Iso.	8106	↓	↓
<u>SAFETY INJECTION SYSTEM</u>			
BIT Iso.	8801A		
	8801B		
	8803A		
	8803B		
Hot Leg Isolation	8814	↓	↓
	8816		
Cold Leg Recirc. Isolation	8885		