Public Service™

Public Service
Company of Colorado
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R. F. WALKER
PRESIDENT

September 5, 1986
Fort St. Vrain
Unit No. 1
P-86538

Regional Administrator
Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Attention: Mr. J. E. Gagliardo, Chief
Reactor Projects Branch

Docket No. 50-267

SUBJECT: Additional Information
Regarding IE Bulletin 85-03
Response

REFERENCES: 1) NRC letter, Gagliardo
to Williams dated 7/22/86
(G-86400)

2) PSC letter, Walker
to Gagliardo dated 5/14/86
(P-86356)

Dear Mr. Gagliardo:

This letter provides additional information regarding Public Service Company of Colorado's (PSC) response to IE Bulletin 85-03, Motor Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings. In Reference 1, the NRC requested additional information in two areas, as follows:

1. The first question requested that PSC discuss:

"The method by which you determined differential pressure for the valves identified."

86-1038

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1/1

PSC reviewed applicable design documents and operating procedures to determine the maximum expected differential pressure conditions during which the valves would be expected to open or close. PSC's program for IE Bulletin 85-03 includes two systems, emergency feedwater and emergency condensate.

a. The emergency feedwater system review includes valves downstream of the boiler feed pumps, where the highest operating pressure identified in the FSV Reference Design Books is 3620 psia. Pump performance curves and system startup procedures were reviewed to determine a maximum expected differential pressure. For both opening and closing, 4500 psi was chosen, based on the maximum valve operating pressure identified in the valve design specificaton. This value is conservative for valves downstream of the high head, variable speed, turbine driven boiler feed pumps 1A and 1C, as these pumps can be operated at reduced speed and head during valve operations. It is also conservative for valves downstream of the motor driven boiler feed pump 1B, as a recirculation line bypasses sufficient flow to keep the differential pressure below 4500 psi. This assures that flow can be directed to the emergency feedwater header under all credible operating events.

b. The emergency condensate system is a lower energy system that was included in PSC's IE Bulletin 85-03 program to provide a second line of defense to assure core cooling. The condensate system is normally operating for core heat removal and the maximum operating differential pressure of 366 psi was used in the Reference 2 submittal. This is the highest pressure identified in the FSV Reference Design Books and process flow diagrams, and it would assure core cooling during all credible operating events. In order to provide additional assurance that emergency condensate valves will operate properly, PSC has increased their design basis differential pressure to 450 psi. This value assures capability to operate valves against the shutoff head of the condensate pumps (approximately 412 psig) with downstream piping completely depressurized, and it is conservative with respect to expected service pressures identified above. A revised valve data sheet is included as Attachment 1.

2. The second question requested that PSC indicate:

"Whether or not you will determine switch settings prior to testing, and if so, how this will be accomplished."

PSC will record the "as found" switch settings for all valves tested in accordance with IE Bulletin 85-03, except HV-2290 and HV-2291. This will be accomplished as part of PSC's procedure for ensuring that the valve operators are adjusted to provide the stem forces required to overcome any expected differential pressures. A load cell-type test device will be used to monitor operator performance. Prior to any switch adjustments, the valves will be operated and the developed stem forces and switch setpoints will be recorded. This "as found" data will later be compared with any new settings and, consistent with the guidance provided in IE Bulletin 85-03, the valve's operability will be evaluated in accordance with the applicable technical specifications.

The motor operators for valves HV-2290 and HV-2291 are being replaced during the current outage. "As found" data for these valves will be obtained if the outage schedule will not be adversely affected.

If you have any questions regarding this information, please contact Mr. M. H. Holmes at (303) 480-6960.

Very truly yours,

R. F. Walker

R. F. Walker
Chairman and
Chief Executive Officer

ROW/SWC/paw

Attachments

cc: U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Public Service Company of Colorado	)	Docket No. 50-267
Fort St. Vrain Unit No. 1	)	

AFFIDAVIT

R. F. Walker, being first duly sworn, deposes and says: That he is Chairman and Chief Executive Officer, of Public Service Company of Colorado, the Licensee herein, that he has read the information presented in the attached letter and knows the contents thereof, and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

R. F. Walker

R. F. Walker
Chairman and
Chief Executive Officer

STATE OF Colorado)
)
COUNTY OF Denver)

Subscribe and sworn to before me, a Notary Public on this 5th day of September, 1986.

Janice E. Stufflebeam

Notary Public
9590 Salamath Circle
Thornton

My commission expires August 22, 1989.

ATTACHMENT 1
to P-86538

IE Bulletin 85-03
Motor Operated Valve Data

Valve	Valve Operator	Valve Function	Design Basis delta P (psi) Open/Close
HV 3108, HV 3109, HV 3110, 10" stop check, 2500 lb, Rockwell Edward	Limitorque, Model SMB-4T, Motor Speed is 1705 rpm	1A, 1B, 1C Boiler Feed Pump Discharge Isolation	4500/4500
HV 31118, HV 31119, HV 31120, 8" stop check, 2500 lb, Rockwell Edward	Limitorque, Model SMB-3, Motor Speed is 1720 rpm	1A, 1B, 1C Boiler Feed Pump/ Emergency Feed Header Isolation	4500/4500
HV 31208 4" Globe, 2500 lb, Rockwell Edward	Limitorque SMB-1 Motor Speed is 1700 rpm	1B Boiler Feed Pump Discharge Bypass	4500/4500
HV 31191, 8" Gate Valve, 300 lb, Walworth	Limitorque, Model SMB-0, Motor Speed is 1700 rpm	Emergency Condensate/ Emergency Condensate Header Isolation	450/450
HV 2237 HV 2238, 8" Globe-Y, 2500 lb, Rockwell	Limitorque, Model SMB-4T, Motor Speed is 1685 rpm	Emergency Condensate/ EES Header Isolation Loop 1, Loop 2	450/450

HV 2290 HV 2291, 6" Globe, 900 lb, Velan	Rotork, Type 70A, Output Speed is 29 rpm	Emergency Condensate/ Reheater Isolation Loop 1, Loop 2	450/450
HV 3133-1, HV 3135-1 8" Gate, 300 lb, Walworth	Limitorque, Model SMB-0, Motor Speed is 1700 rpm	Condensate Pump Discharge Isolation	450/450
HV 3133-2 HV 3135-2 6" Gate, 300 lb, Walworth	Limitorque, Model SMB-00, Motor Speed is 1700 rpm	Condensate Pump/ Emergency Condensate Header Isolation	450/450