



Public Service™

January 14, 1988
Fort St. Vrain
Unit No. 1
P-28001

Public Service
Company of Colorado
P.O. Box 840
Denver, CO 80201-0840

R.O. WILLIAMS, JR.
VICE PRESIDENT
NUCLEAR OPERATIONS

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

Docket No. 50-267

SUBJECT: IE Bulletin 85-03
Program Completion

REFERENCES: See Attachment 1

Gentlemen:

This letter provides a written report on Public Service Company of Colorado's (PSC) Motor Operated Valve (MOV) Program and is intended to fulfill the requirement of IE Bulletin No. 85-03 (Reference 1), to provide a written report within 60 days of completion of the program.

As explained in Reference 2, based upon a review of shutdown cooling systems at FSV, PSC considers the emergency feedwater and emergency condensate headers to be analogous to the high pressure coolant injection/core spray and emergency feedwater systems of a LWR. The motor operated valves in the aforementioned systems that may be used to ensure shutdown cooling are considered the "covered" valves and are included in PSC's MOV test program. The valves to be covered were identified in References 3 and 4 which, along with PSC's previous submittals, provided the design basis for operation of each valve and the maximum differential pressure the valve could experience during operation. In summary, the maximum pump discharge pressure was chosen to be the maximum differential pressure of the pump(s) supplying the line in which the valve is found.

PSC has tested all the valve operators in our MOV test program, using the methodologies developed by MOVATS Incorporated. These methodologies were previously submitted by Union Electric's Calloway Plant (References 5 and 6) on a pilot plant basis. MOVATS methodologies are in agreement with our original submittal (Reference 2). In general the MOVATS test program involves calculating the thrust required for the design differential pressure, connecting a load cell and a Thrust Monitoring Device to the operator to simulate the maximum load the valve would see during maximum design conditions, and then recording the valve and motor signatures during operation under the simulated load conditions. This allows proper setting of the various limit and torque switches and will allow for

IE11
11

January 14, 1988

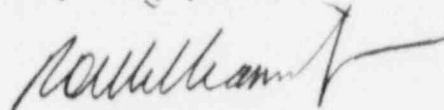
future evaluation of the valve and operator by providing baseline data against which future motor signatures can be evaluated.

The switch settings developed with the MOVATS methodologies were verified by testing against the maximum differential pressures possible during plant conditions. One valve operator of each Limitorque model was tested in this manner. All covered valves have been tested and adjusted to the proper switch settings, and no valves were found inoperable. Attachment 2 shows the "Summary of Significant MOV Abnormalities" based upon this initial testing.

PSC has developed a program to evaluate all covered MOVs on a Refueling Cycle basis (this ensures all covered valves are tested at least once per 18 months). The correct switch settings, as determined for each valve based upon the maximum expected differential pressure, have been incorporated into plant engineering procedures. To change any of these values new calculations must be performed and approved by the Plant Engineering organization prior to using the new values. Attachment 3 provides a list of the covered valves and related information including As Left (AL) switch settings, design and test differential pressures and other information as requested by Reference 1. No As Found (AF) settings are listed because all of our covered valves had their switches replaced as a part of the Environmental Qualification Program and initial settings were made during the development of our MOV testing program.

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

Very truly yours,



R.O. Williams, Jr.
Vice President
Nuclear Production

ROW/KAP/lmb

Attachments

January 14, 1988

cc: Regional Administrator, Region IV
ATTN: Mr. T. F. Westerman, Chief
Project Section B

Mr. Robert Farrell
Senior Resident Inspector
Fort St. Vrain

Mr. Jose A. Calvo, Director
Project Directorate IV

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

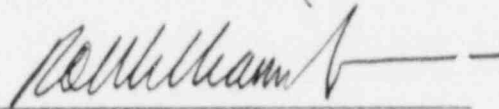
In the Matter

Public Service Company of Colorado
Fort St. Vrain Unit No. 1

)
)
) Docket No. 50-267
)

AFFIDAVIT

R. O. Williams, Jr. being first duly sworn, deposes and says:
That he is Vice President, Nuclear Operations, 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. O. Williams, Jr.
Vice President
Nuclear Operations

STATE OF Colorado)
COUNTY OF Denver)

Subscribe and sworn to before me, a Notary Public on this
14th day of January, 1988.

My Commission Expires Aug. 22, 1989

Janice E. Stufflebeam
9530 Balamath Circle
Thornton, Colo 80221

Attachment 1

References:

- 1) IE Bulletin 85-03
dated 11/15/85
(G-85471)
- 2) PSC letter, Walker to
Gagliardo dated
5/14/86 (P-86356)
- 3) PSC letter, Williams to
NRC dated 10/15/87
(P-87353)
- 4) PSC letter, Williams to
NRC, dated 9/16/87
(P-87295)
- 5) Union Electric letter,
Schnell to Keppler
dated 10/17/86
(ULNRC-1387)
- 6) Union Electric letter,
Schnell to the NRC
dated 3/5/87
(ULNRC-1456)

SUMMARY OF SIGNIFICANT MOV ABNORMALITIES

<u>Abnormal Condition</u>	<u>Valves with Abnormality (%) *</u>
Bypass switch improperly set	100
Incorrect thrust	Not Known**
Unbalanced torque switch	100***
Valve backseating	0
High motor current	0
Torque switch abnormalities	0
Miscellaneous abnormalities	0

- * Percent of valves experiencing abnormality. The total does not equal 100 percent as most valves had more than one abnormality. Abnormalities did not prevent proper functioning of valves and they were not declared inoperable.
- ** Switches were replaced as part of Environmental Qualification program, and original settings are not known. Valves did function properly during preliminary stroke testing.
- *** Valves with SMB-4T operators do not require balancing of torque switches. However, all other valves had unbalanced torque switches.

ATTACHMENT 3
to P-88001

IF Bulletin 85-03
Motor Operated Valve Data

Valve	Valve Operator	Valve Function	Basis Delta P Open/Close	Test Delta P Open/Close	Switch Settings Prior to Adjustments as a Result of Bulletin Open/Close	Final Switch Settings in Response to Bulletin Open/Close
HV-3108 10" stop check, 2500 lb, Rockwell Edward Model 3906MY	Limitorque, Model SMB-4T Motor Speed is 1705 rpm	1A Boiler Feed Pump Discharge Isolation	4500/4500	3800/3800	Note 5	3.0/1.0
HV-3109 10" stop check, 2500 lb, Rockwell Edward Model 3906MY	Limitorque, Model SMB-4T Motor Speed is 1705 rpm	13 Boiler Feed Pump Discharge Isolation	4500/4500	Note 1	Note 5	3.0/1.0
HV-3110 10" stop check, 2500 lb, Rockwell Edward Model 3906MY	Limitorque, Model SMB-4T Motor Speed is 1705 rpm	1C Boiler Feed Pump Discharge Isolation	4500/4500	Note 1	Note 5	3.0/1.0
HV-3118 8" stop check, 2500 lb, Rockwell Edward Model A3906MY	Limitorque, Model SMB-3 Motor Speed is 1720 rpm	1A Boiler Feed Pump/Emergency Feed Header Isolation	4500/4500	1800/1800	Note 5	2.25/2.25

<u>Valve Component ID</u>	<u>As Found Valve Operability</u>	<u>Test Method Description/Justification</u>
HV-3108	Operable	Valve was tested at maximum differential pressure obtainable, due to plant configuration. The valve was adjusted with a simulated load for the Basis delta P condition, but since this assumes a line break, it could not be simulated.
HV-3109	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3108.
HV-3110	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3108.
HV-31118	Operable	Valve was tested at maximum practical differential pressure, considering plant configuration. The valve was adjusted with a simulated load for the Basis delta P condition, but since this assumes a line break, it could not be simulated.

<u>Valve</u>	<u>Valve Operator</u>	<u>Valve Function</u>	<u>Basis Delta P Open/Close</u>	<u>Test Delta P Open/Close</u>	<u>Switch Settings Prior to Adjustments as a Result of Bulletin Open/Close</u>	<u>Final Switch Settings in Response to Bulletin Open/Close</u>
HV-31119 8" stop check, 2500 lb, Rockwell Edward Model A3906MY	Limiterque, Model SMB-3 Motor Speed is 1720 rpm	1B Boiler Feed Pump/Emergency Feed Header Isolation	4500/4500	Note 2	Note 5	2.25/2.25
HV-31120 8" stop check, 2500 lb, Rockwell Edward Model A3906MY	Limiterque, Model SMB-3 Motor Speed is 1720 rpm	1C Boiler Feed Pump/Emergency Feed Header Isolation	4500/4500	Note 2	Note 5	1.75/1.75
HV-31191 8" Gate Valve, 300 lb, Walworth Model 5206WE	Limiterque, Model SMB-0 Motor Speed is 1700 rpm	Emergency Condensate/ Emergency Condensate Header Isolation	450/450	Note 3	Note 5	1.5/2.0
HV-2237 8" Globe- Y, 2500 lb, Walworth Model P-418313	Limiterque, Model SMB-4T Motor Speed is 1685 rpm	Emergency Condensate/ EES Header Isolation, Loop 1	450/450	Note 1	Note 5	2.0/2.25
HV-2238 8" Globe- Y, 2500 lb, Walworth Model P-418313	Limiterque, Model SMB-4T Motor Speed is 1685 rpm	Emergency Condensate/ EES Header Isolation, Loop 2	450/450	Note 1	Note 5	2.5/2.5

<u>Valve Component ID</u>	<u>As Found Valve Operability</u>	<u>Test Method Description/Justification</u>
HV-31119	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-31118.
HV-31120	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-31118.
HV-31191	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3133-1.
HV-2237	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3108. The Basis delta P is much less than HV-3108, and the valve is smaller, but the applicability of the methodology to the SMB-4T operator was shown with HV-3108.
HV-2238	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3108. The Basis delta P is much less than HV-3108, and the valve is smaller, but the applicability of the methodology to the SMB-4T operator was shown with HV-3108.

<u>Valve</u>	<u>Valve Operator</u>	<u>Valve Function</u>	<u>Basis Delta P Open/Close</u>	<u>Test Delta P Open/Close</u>	<u>Switch Settings Prior to Adjustments as a Result of Bulletin Open/Close</u>	<u>Final Switch Settings in Response to Bulletin Open/Close</u>
HV-3133-1 8" Gate, 300 lb, Walworth Model 5206WE	Limiterque, Model SMB-0 Motor Speed is 1700 rpm	Condensate Pump Discharge Isolation	450/450	325/325	Note 5	2.0/2.875
HV-3135-1 8" Gate, 300 lb, Walworth Model 5206WE	Limiterque, Model SMB-0 Motor Speed is 1700 rpm	Condensate Pump Discharge Isolation	450/450	Note 3	Note 5	1.625/2.25
HV-3133-2 6" Gate, 300 lb, Walworth Model 5206WE	Limiterque, Model SMB-00 Motor Speed is 1700 rpm	Condensate Pump/ Emergency Condensate Header Isolation	450/450	Note 4	Note 5	1.5/2.0
HV-3135-2 6" Gate, 300 lb, Walworth Model 5206WE	Limiterque, Model SMB-00 Motor Speed is 1700 rpm	Condensate Pump/ Emergency Condensate Header Isolation	450/450	350/350	Note 5	1.75/2.25

<u>Valve Component ID</u>	<u>As Found Valve Operability</u>	<u>Test Method Description/Justification</u>
HV-3133-1	Operable	Valve was tested at maximum practical differential pressure, considering plant configuration. The valve was adjusted with a simulated load for the Basis delta P condition, but since this assumes a line break, it could not simulated.
HV-3135-1	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3133-1.
HV-3133-2	Operable	Valve was not tested against actual differential pressure. A simulated load was applied for switch adjustments. Settings were confirmed by similarity to HV-3135-2.
HV-3135-2	Operable	Valve was tested at maximum practical differential pressure, considering plant configuration. The valve was adjusted with a simulated load for the Basis delta P condition, but since this assumes a line break, it could not be simulated.

Note 1 Qualified by similarity to HV-3108

Note 2 Qualified by similarity to HV-31118

Note 3 Qualified by similarity to HV-3133-1

Note 4 Qualified by similarity to HV-3135-2

Note 5 New switches were installed as a part of the EQ program, and As Found settings are not meaningful. The switches were set to the As Left values prior to the valves being placed in service.