

REGION II
VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

31 MAY 27 1981
May 22, 1981



Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

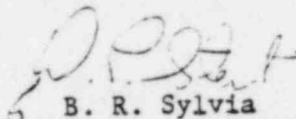
Serial No. 313
NO/DWSjr:jmj
Docket Nos. 50-280, 50-281
50-338, 50-339
License Nos. DPR-32, DPR-37
NPF-4, NPF-7

Dear Mr. O'Reilly:

SUBJECT: I.E. BULLETIN 81-02

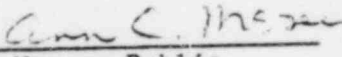
This is in response to I.E. Bulletin 81-02, "Failure of Gate Type Valves to Close Against Differential Pressure". Our responses for Surry Power Station Unit Nos. 1 and 2 and North Anna Power Station Unit Nos. 1 and 2 are attached. The information contained in the attached pages is true and accurate to the best of my knowledge and belief.

Very truly yours,


B. R. Sylvia
Manager - Nuclear
Operations and Maintenance

Attachment

City of Richmond
Commonwealth of Virginia
Acknowledged before me, this 22nd day of May, 1981


Notary Public

My Commission expires: 2-26, 1985

SEAL

cc: Mr. Steve A. Varga, Chief
Operation Reactors Branch No. 1
Division of Licensing

Mr. Robert A. Clark, Chief
Operating Reactors Branch No. 3
Division of Licensing

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RESPONSE TO IE BULLETIN 81-02
FAILURE TO GATE TYPE VALVES TO CLOSE AGAINST DIFFERENTIAL PRESSURE
SURRY POWER STATION

NRC REQUEST

1. Within 30 days of the issuance date of this bulletin, ascertain whether any of the affected valves have been installed, or are maintained as spares for installation, where they are required to close with a differential pressure across them in safety-related systems or as PORV block valves. The differential pressures of concern include the following:
 - a. For the W-EMD manufactured valves, values in excess of the threshold values in Table 1.

Response

A review has been completed of the valves in safety related systems that meet the above prerequisites. One valve has been identified as being applicable to this bulletin: W-EMD Model 03001GM99FN B0D000W750004, Vepco Mark No.: MOV-2869B.

NRC REQUEST

2. If any affected valves are identified as being installed, take corrective action and evaluate the effect that failure to close under any condition requiring closure would have on system(s) operability pursuant to the facility technical specifications for continued operation.

Response

The affected valve, MOV-2869B, is a normally closed valve and does not receive a "safety signal" to perform its' function. Long term recovery procedures, following a LOCA, require the alternating of ECC flow between the cold and hot legs. MOV-2869B, Hot Leg Recirculation Isolation, is opened 16 hours after the initiation of the LOCA. Subsequently, the MOV will be closed 24 hours later, when shifting to "cold leg recirculation". However, the failure of this valve to fully close will not prevent the ECCS from performing its' intended function. Therefore, there is no affect on the ECCS operability pursuant to technical specifications.

NRC REQUEST

3. If any affected valves are identified as spares, either modify the valves so that they are qualified for the intended service or obtain qualified replacements prior to installation.

Response

None of the affected valves are spares. Furthermore, any valve

3. Response (continued)

that is maintained as a spare or used as a replacement will be qualified for the intended service.

NRC REQUEST

4. Within 45 days of the issuance date of this bulletin, submit a report to NRC listing the affected valves identified, their service or planned service, the maximum differential pressure at which they would be required to close, the safety consequences of the valve's failure to close, the corrective action taken or planned, and the schedule for completing the corrective action.

Response

- (a) The affected valve is a W-EMD Model No. 03001GM99FNB0D000 W750004, Vepco Mark No. MOV-2869B. This valve functions as a Hot Leg Recirculation Isolation valve.
- (b) The maximum differential pressure, as obtained from original startup testing data, is 870 psi.
- (c) As stated in item 2 above, the valve's intended function is to provide the capability of alternating ECC flow between the cold and hot legs. Westinghouse has shown that this type of valve will operate through 75% of its full stroke under design differential pressures. This equates to about 5% of the total flow area unsealed. Hence, less than 1% of the total ECC flow, that should be injected into the cold legs, would be diverted to the hot legs. This amount of flow would not negate the conclusions presented in the FSAR and would not have any significant affect on LOCA.
- (d) Vepco will be working with Westinghouse to qualify this valve for its intended service.
- (e) This valve will be modified, during the next outage of sufficient duration following the receipt of the required materials.

Estimated man-power expended in review and preparation of this report is forty-two (42) man-hours. No estimate of man-days is presently available for implementing corrective action.

RESPONSE TO IE BULLETIN 81-02
FAILURE OF GATE TYPE VALVES TO CLOSE AGAINST DIFFERENTIAL PRESSURE
NORTH ANNA UNITS 1 & 2

1. Three valves, all installed in Unit 2, were identified:
 - a) MOV-2536 (3GM88 W-EMD manufactured valve)
This valve is installed as PORV Block Valve.
 - b) MOV-2373 (3GM88 W-EMD manufactured valve)
This valve is installed in the common charging pump recirculation flow path.
 - c) MOV-2289B (3GM99 W-EMD manufactured valve)
This valve is installed in the normal charging line and serves to isolate normal charging flow path in the event of a safety injection.
2. See responses to items 3-5.
3. An evaluation was performed of the effect of these valves not being able to fully close on system(s) operability pursuant to Technical Specifications:
 - a) MOV-2536 - The operability of this valve is not addressed in Tech Specs. Westinghouse has stated that "typically, these valves operated through 75% of their full disc travel leaving about 5% of the flow passage unsealed". Therefore, the valve would serve to effectively isolate a stuck open PORV such that charging pump flow could maintain RCS inventory and hence pressure.
 - b) MOV-2373 - This valve was recently modified (Design Change 80-S63) to remove the automatic Safety Injection closure signal. Presently, emergency procedures call for this valve to be manually closed only if RCS pressure decreases to below 1485 psig. In addition, once the individual charging pump recirculation isolation valves (2775 A,B,C) are closed, there will be negligible ΔP across MOV 2373 and it would fully close.
 - c) MOV-2289B - This valve provides Train B isolation of normal charging flow path in the event of a safety injection. Since this valve is installed in series with the Train A isolation valve (MOV-2289A), it will see negligible ΔP once the Train A valve closes. As a result, MOV-2289B would fully close after MOV-2289A closes.
4. None of the affected valves were identified as spares.
5. a) MOV-2536 - The maximum differential pressure this valve would be exposed to is approximately 2400 PSI. The fact that the valve will close to significantly restrict flow means that the charging pumps should be able to maintain RCS inventory.

During the May, 1981 Unit 2 outage, the following modifications were completed on this valve to ensure full closure for rated conditions:

1. The motor pinion/worm shaft gearset was changed to be made compatible with the required thrust range.
2. The control circuit wiring for the limitorque operator was changed to limit closing to ensure a positive and predictable seating load.

- b) MOV-2373 - The maximum differential pressure this valve would be exposed to is approximately 2600 PSI (the shutoff head of the charging pump). Since this valve is in series with the 2775 A,B, C valves, it would fully close once these valves closed.

During the May, 1981 Unit 2 outage, the same modifications done on MOV-2536 were also completed for MOV-2373. This work completes all modifications required to upgrade these valves to their original rating.

- c) MOV-2289B - The maximum differential pressure this valve would be exposed to is approximately 850 PSI (assuming S.I. initiated by RCS low pressure at 1765 PSIG). Since this valve is in series with the 2289A valve, MOV-2289B would be assured of fully closing once the MOV-2289A closed.

The modifications to this valve will be accomplished in two stages. During the May, 1981 Unit 2 outage, the following work was completed:

1. The originally installed SMB-000 operator was replaced with a SB-00 operator. The SB-00 operator was modified with a new motor pinion/worm gearset to be compatible with the required thrust range. In addition, the motor operator was fitted with a new stem nut to make the operator compatible with the original valve stem. Finally, as was done for the other two valves, the control circuit for the limitorque operator was changed to limit closing.

During the next Unit 2 outage presently scheduled for October, 1981, the modifications will be completed by replacing the original 1.125 inch valve stem with a 1.250 inch valve stem, reboring the valve bonnet to accommodate the larger stem, and replacing the stem nut in the operator to make it compatible with the larger valve stem.

Once these changes have been completed, this valve will be upgraded to meet its original rating.

Estimated manpower expended in review and preparation of this report is twenty-four (24) manhours. Estimated manpower expended to implement corrective action is five (5) man days.