



Carolina Power & Light Company

P. O. Box 1551 • Raleigh, N. C. 27602

MAR 20 1991

SERIAL: NLS-91-072  
10CFR50.54(f)

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Senior Vice President  
Nuclear Generation

United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62  
SUPPLEMENTAL RESPONSE TO NRC GENERIC LETTER 89-10, SUPPLEMENT 3

Gentlemen:

On October 25, 1990, the NRC issued Supplement 3 to Generic Letter 89-10, "Consideration of the Results of NRC-Sponsored Tests of Motor-Operated Valves." The Supplement requested BWR licensees to perform an assessment of the applicability of the data from NRC-sponsored motor-operated valve (MOV) tests to determine the "as-is" capability of the MOVs used to provide isolation of the HPCI and RCIC steam supply lines and the suction line for RWCU. Additionally, BWR licensees were requested to verify that the generic safety assessments performed by the NRC Staff and the BWR Owners Group were applicable.

Carolina Power & Light Company (CP&L) provided the required 30-day response to Reporting Requirement No. 1 of Supplement 3 to Generic Letter 89-10 for the Brunswick Steam Electric Plant (BSEP) on December 17, 1990. The response indicated that the plant-specific safety assessment had been completed and was available on-site for NRC staff review.

Reporting Requirement No. 2 of Supplement 3 also requested BWR licensees to provide, within 120 days of receipt of the Supplement, the criteria that were applied in determining whether deficiencies existed in the HPCI, RCIC, and RWCU MOVs or in any MOVs considered to be more safety significant. The purpose of this letter is to respond to Reporting Requirement No. 2.

CP&L has reviewed the NRC-sponsored test results provided in NRC Information Notice 90-40 and EPRI Report No. NP-7065 and has concluded that the data is not applicable to the valves in question at BSEP. The attachment to this letter details our review for each valve. Based on our review, we conclude that the subject valves in the HPCI, RCIC, and RWCU systems are capable of providing isolation in the event of a line break outside containment.

During our review of these valves, CP&L discovered a potential error in the software for type SMB-00 actuators used by the Limitorque Motor Actuator Characterizer (MAC) diagnostic equipment. This software may have resulted in torque switches being set below the vendor's calculated requirement for three of the valves in question. Those MOVs were the Unit No. 2 RCIC Inboard Steamline Isolation Valve (2-E51-F007) and the Unit No. 2 RWCU Inboard and Outboard Inlet Isolation Valves (2-G31-F001 and 2-G31-F004). Although the torque switches for these valves may have been set below the design values, vendor information regarding valve characteristics indicates that these valves are still fully capable of closing under design basis conditions at their current settings.

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However, CP&L will increase the torque switch settings for these three valves during the next refueling outage, currently scheduled for Fall 1991. We have also performed an evaluation which establishes the operability of other safety-related valves with SMB-00 actuators which were setup using the MAC equipment. Limitorque has been notified and CP&L is also evaluating this potential MAC software error for determination of reportability under 10CFR21.

Although CP&L does not believe the NRC-sponsored test data is applicable to our valve design due to differences in disk types and configurations, we completed extensive valve modifications on Unit 1 during the last refueling outage and plan to complete the same modifications on Unit 2 during our next refueling outage. These modifications will significantly improve the design margin of the valves in question.

The manufacturer of the double-disk gate valves currently installed, or to be installed at BSEP, is planning to perform testing on a prototype valve later this year. CP&L believes that this testing may provide data which is representative of our double-disk gate valves. CP&L will reevaluate the margins for these valves if the manufacturer's test results indicate such reevaluation is necessary.

If you have any questions concerning this information, please contact Mr. L. S. Rowell at (919) 546-2770.

Yours very truly,

*R. A. Watson*

R. A. Watson

R. A. Watson, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

*Susie G. Bunw*

Notary (Seal)

My commission expires: 3/28/92

LSR/jbw (1027GLU)

Enclosure

cc: Mr. S. D. Ebnetter  
Mr. N. B. Le  
Mr. R. L. Prevatte



ENCLOSURE TO NLS-91-072  
BRUNSWICK STEAM ELECTRIC PLANT  
REVIEW OF MOTOR-OPERATED VALVES

1. MOV 1-E41-F002, HPCI Inboard Steamline Isolation Valve  
10" Anchor/Darling, 900#, Double-Disk Gate  
SMB-1-25 (AC with Ball-Nut), Torque Switch Trip ~ 41,554 lbs.  
Not Tested During NRC-Sponsored Testing

This isolation valve is a double-disk gate valve design which was not tested during the NRC-sponsored testing. Therefore, CP&L does not consider the data reported in NRC Information Notice 90-40 or EPRI Report No. NP-7065 to be applicable to this valve. The torque switch for this valve is currently set to deliver a stem thrust which exceeds the vendor's calculated requirement for closing. Therefore, CP&L concludes that this valve is currently capable of closing under design basis conditions. Additionally, this valve has the closing torque switch bypassed until the valve is approximately 4% open. This allows full motor torque to be applied until the valve port is covered.

2. MOV 1-E41-F003, HPCI Outboard Steamline Isolation Valve  
10" Anchor/Darling, 900#, Double-Disk Gate  
SMB-1-25 (DC with Ball-Nut), Torque Switch Trip ~ 38,104 lbs.  
Not Tested During NRC-Sponsored Testing

See response for MOV 1-E41-F002 above.

3. MOV 1-E51-F007, RCIC Inboard Steamline Isolation Valve  
3" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-5 (AC), Torque Switch Trip ~ 7,305 lbs.  
Not Tested During NRC-Sponsored Testing

See response for MOV 1-E41-F002 above.

4. MOV 1-E51-F008, RCIC Outboard Steamline Isolation Valve  
3" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-5 (DC), Torque Switch Trip ~ 7,305 lbs.  
Not Tested During NRC-Sponsored Testing

See response for MOV 1-E41-F002 above.

5. MOV 1-G31-F001, RWCU Inlet Inboard Isolation Valve  
6" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-15 (AC), Torque Switch Trip ~ 14,009 lbs.  
Not Tested During NRC-Sponsored Testing

See response for MOV 1-E41-F002 above.

6. MOV 1-G31-F004, RWCU Inlet Outboard Isolation Valve  
6" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-10 (DC), Torque Switch Trip ~ 14,009 lbs.  
Not Tested During NRC-Sponsored Testing

See response for MOV 1-E41-F002 above.

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BRUNSWICK STEAM ELECTRIC PLANT  
REVIEW OF MOTOR-OPERATED VALVES

7. MOV 2-E41-F002, HPCI Inboard Steamline Isolation Valve  
10" Anchor/Darling, 600#, Flex Wedge Gate  
SMB-1-25 (AC), Torque Switch Trip ~ 32,611 lbs.  
Not Tested During NRC-Sponsored Testing

The 10" Anchor/Darling flex wedge gate valve tested for the NRC was a 900# class valve. Although the full extent of the internal configuration differences between the tested valve and the valve installed at BSEP are unknown, the seat dimensions provided in EPRI Report No. NP-7065 for the tested valve and the dimensions provided by Anchor/Darling for the installed valve are different. Therefore, CP&L concludes that the NRC test data may not be representative of the valve currently installed at BSEP.

CP&L does, however, have experience with an identical 10", 600#, flex wedge gate valve closing against high steam flow and differential pressure. This event occurred during a test of the Unit No. 1 HPCI system and is described in our LER 1-78-039. During this event, the HPCI turbine "ran away" due to a failure of the electronic speed controller and the mechanical overspeed trip device. The inboard steamline isolation valve (MOV 1-E41-F002) received a 300% steam flow isolation signal. The valve successfully closed against the high steam flow and a differential pressure of approximately 1000 psid to isolate the steamline. The steam flow through the valve during this event was enough to reduce main generator output by approximately 50 MWe. Although the thrust delivered by the actuator during this event is unknown, the available information indicates that the torque setting for the Unit 1 valve closely approximates that of the Unit 2 valve currently installed. Therefore, CP&L believes that the existing Unit 2 valve will function as designed at the current torque switch setting.

This valve is currently scheduled to be replaced with a double-disk gate valve during the next Unit 2 refueling outage. This change is being made to eliminate the potential for thermal binding. In addition to the valve change, the existing actuator is being changed to a new ball-nut configuration. To ensure that full motor torque is available to ensure isolation of the valve, the closing torque switch will also be bypassed until the valve is 4% open. Although the existing configuration of this valve will function as designed, the future modifications discussed above will provide additional margin to ensure closure under design basis conditions.

8. MOV 2-E41-F003, HPCI Outboard Steamline Isolation Valve  
10" Anchor/Darling, 600#, Flex Wedge Gate  
SMB-1-25 (DC), Torque Switch Trip ~ 34,056 lbs.  
Not Tested During NRC-Sponsored Testing

See the response for MOV 2-E41-F003 above.



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REVIEW OF MOTOR-OPERATED VALVES

9. MOV 2-E51-F007, RCIC Inboard Steamline Isolation Valve  
3" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-5 (AC), Torque Switch Trip ~ 3,273 lbs.  
Not Tested During NRC-Sponsored Testing

This isolation valve is a double-disk gate valve design which was not tested during the NRC-sponsored testing. Therefore, CP&L does not consider the data reported in NRC Information Notice 90-40 and EPRI Report No. NP-7065 to be applicable to this valve.

The torque switch for this valve may have been set to deliver a stem thrust which is below the vendor's recommendation. This lower than desired torque switch setting occurred due to an error in Limitorque's Motor Actuator Characterization (MAC) software for SMB-00 actuators, which was identified by CP&L. Although the current torque switch setting for this valve is considered marginal, information from the valve manufacturer suggests that this valve will close at the current setting under design basis conditions.

CP&L will increase the torque switch setting for this valve during the next refueling outage for Unit No. 2, currently scheduled for Fall 1991. Additionally, during that outage, the logic for this valve will be changed to bypass the closing torque switch until the valve is approximately 4% open. This will allow full motor torque to be applied until the valve port is covered.

10. MOV 2-E51-F008, RCIC Outboard Steamline Isolation Valve  
3" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-5 (DC), Torque Switch Trip ~ 4,000 lbs.  
Not Tested during the NRC-Sponsored Testing

This isolation valve is a double-disk gate valve design which was not tested during the NRC-sponsored testing. Therefore, CP&L does not consider the data reported in NRC Information Notice 90-40 or EPRI Report No. NP-7065 to be applicable to this valve.

The torque switch for MOV 2-E51-F008 is currently set to deliver a stem thrust which exceeds the vendor's calculated requirement for closing. Therefore, CP&L concludes that this valve is currently capable of closing under design basis conditions. During the next Unit No. 2 refueling outage, the logic for this valve will be modified so that the closing torque switch is bypassed until the valve is approximately 4% open. This will allow full motor torque to be applied until the valve port is covered.

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REVIEW OF MOTOR-OPERATED VALVES

11. MOV 2-G31-F001, RWCU Inlet Inboard Isolation Valve  
6" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-15 (AC), Torque Switch Trip ~ 11,277 lbs.  
Not Tested During the NRC-Sponsored Testing

See response for 2-E51-F007 above.

12. MOV 2-G31-F004, RWCU Inlet Outboard Isolation Valve  
6" Anchor/Darling, 900#, Double-Disk Gate  
SMB-00-10 (DC), Torque Switch Trip ~ 10,742 lbs.  
Not Tested During the NRC-Sponsored Testing

See response for 2-E51-F007 above.