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SUBJECT: Forwards request for addl info re GL 95-07, "Pressure Locking & Thermal Binding of Safety-Related Power-Operated Gate Valves." Rev 0 to Calculation A10.1-AD-003 encl.

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CARL D. TERRY
Vice President
Nuclear Engineering

June 20, 1996
NMP1L 1087

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE:	Nine Mile Point Unit 1 Docket No. 50-220 <u>DPR-63</u>	Nine Mile Point Unit 2 Docket No. 50-410 <u>NPF-69</u>
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Subject: *Request for Additional Information - Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," Nine Mile Point, Units 1 and 2 (TAC Nos. M93488 and M93489)*

Gentlemen:

On August 17, 1995, the Commission issued Generic Letter (GL) 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," to request that licensees take actions to ensure that safety-related power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing their safety functions. By letters dated October 16, 1995 and February 13, 1996, Niagara Mohawk provided responses to GL 95-07.

On May 21, 1996, the Commission issued a Request for Additional Information to assist in their review of our previous responses to GL 95-07. Attachments A and B to this letter provide the requested information for Nine Mile Point Unit 1 and Nine Mile Point Unit 2, respectively.

Very truly yours,

C. D. Terry
Vice President - Nuclear Engineering

CDT/JMT/lmc
Attachments

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ATTACHMENT A

NMPI

REQUEST FOR ADDITIONAL INFORMATION

Information Request No. 1

*Your February submittal states that valves 2CSH*MOV107, HPCS Pump Injection Isolation, and 2ICS*MOV126, RCIC Injection Isolation, have been evaluated as having adequate actuator capacity to overcome the applicable pressure locking scenarios at the specific point of operation during an accident and following the guidance of GL 95-07. Please provide these evaluations for our review. Also, please include any thrust requirement and actuator capability calculations that were performed.*

Response No. 1

Information Request No. 1 is applicable only to Nine Mile Point Unit 2 and is addressed in Attachment B to this letter.

Information Request No. 2

In Attachment 1 to GL 95-07, the NRC staff requested that licensees include consideration of the potential for gate valves to undergo pressure locking or thermal binding during surveillance testing. During workshops on GL 95-07 in each Region, the NRC staff stated that, if closing a safety-related power-operated gate valve for test or surveillance defeats the capability of the safety system or train, the licensee should perform one of the following within the scope of GL 95-07:

- 1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,*
- 2. Follow plant technical specifications for the train/system while the valve is closed,*
- 3. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or*
- 4. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.*

The staff stated that normally-open, safety-related power-operated gate valves that are closed for test or surveillance but must return to the open position should be evaluated within the scope of GL 95-07. Please state whether valves that meet this criteria were included in your review, and discuss how potential pressure locking or thermal binding concerns were addressed.



Response No. 2

As indicated in Nine Mile Point Unit 1's response to Generic Letter (GL) 95-07, dated February 13, 1996, safety-related power-operated gate valves with an active safety function to open were evaluated within the scope of GL 95-07. Accordingly, the scope of valves evaluated included normally-open valves that could be closed but must return to the open position to perform its function. The method by which the valves could be closed (i.e., test, surveillance, etc.) had no influence on the decision whether to evaluate the valves. As stated in our February 13, 1996 letter, no modifications were required to address thermal binding. The six MOVs determined to be susceptible to pressure locking were modified during Refuel Outage 13 in 1995. The modifications included adding a bypass line or drilling a hole in the valve disc.

Information Request No. 3

From its review of operational experience feedback, the NRC staff is aware of instances in which licensees have completed design or procedural modifications to preclude pressure locking or thermal binding that may have had an adverse impact upon plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe the evaluations and training of plant personnel that you have conducted or plan for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

Response No. 3

At NMP1, design or procedural modifications to preclude pressure locking or thermal binding were evaluated for any adverse impact to plant safety in accordance with plant design change procedures and 10CFR50.59. Also, operational feedback information was taken into account prior to selecting the type of change to each valve. These changes received technical review per procedure and Station Operations Review Committee (SORC) review. Also, these plant modifications were reviewed for incorporation into the plant simulator programming and into Licensed Operator requal training. In addition, SOER 84-7, Pressure Locking and Thermal Binding of Gate Valves, was previously discussed with plant technical staff during continued training.



ATTACHMENT B

NMP2

REQUEST FOR ADDITIONAL INFORMATION

Information Request No. 1

*Your February submittal states that valves 2CSH*MOV107, HPCS Pump Injection Isolation, and 2ICS*MOV126, RCIC Injection Isolation, have been evaluated as having adequate actuator capacity to overcome the applicable pressure locking scenarios at the specific point of operation during an accident and following the guidance of GL 95-07. Please provide these evaluations for our review. Also, please include any thrust requirement and actuator capability calculations that were performed.*

Response No. 1

Niagara Mohawk evaluated the actuator capacity to overcome applicable pressure locking scenarios for 2CSH*MOV107 and 2ICS*MOV126 in Nine Mile Point Unit 2 (NMP2) calculation number A10.1-AD-003. Applicable portions of this calculation are attached as Enclosure 1 to this Attachment (i.e., calculation pages 3, 4, 5, 6, 7, 20, 21 which address overall calculation methodology and specific evaluations for 2CSH*MOV107 and 2ICS*MOV126).

Information Request No. 2

In Attachment 1 to GL 95-07, the NRC staff requested that licensees include consideration of the potential for gate valves to undergo pressure locking or thermal binding during surveillance testing. During workshops on GL 95-07 in each Region, the NRC staff stated that, if closing a safety-related power-operated gate valve for test or surveillance defeats the capability of the safety system or train, the licensee should perform one of the following within the scope of GL 95-07:

- 1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,*
- 2. Follow plant technical specifications for the train/system while the valve is closed,*
- 3. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or*
- 4. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.*



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The staff stated that normally-open, safety-related power-operated gate valves that are closed for test or surveillance but must return to the open position should be evaluated within the scope of GL 95-07. Please state whether valves that meet this criteria were included in your review, and discuss how potential pressure locking or thermal binding concerns were addressed.

Response No. 2

Power-operated gate valves that meet the testing criterion in Attachment 1 of GL 95-07 were included in NMP2's review for susceptibility for pressure locking/thermal binding in the following manner. At NMP2, valves are primarily tested for ISI/IST or for GL 89-10, Safety-Related Motor-Operated Valve Testing and Surveillance Program, purposes. Normal ISI/IST testing is of short duration which does not allow significant time for a temperature increase to valve bonnets. Accordingly, thermal binding or pressure locking is not considered likely. Extensive testing that results in a valve being declared inoperable (e.g., VOTES testing for GL 89-10 program purposes) requires compliance to the appropriate plant Technical Specifications. In either case, after completion of testing, the applicable valve must be returned to its normal position in accordance with plant operating procedures governing system alignment. Any failure to properly return to its normal position after testing would result in an evaluation of valve operability, and if appropriate, compliance with plant Technical Specifications. Therefore, based on above discussion, the review for pressure locking/thermal binding excluded normally-open, safety-related power-operated valves that are only closed for testing or surveillance from further consideration of susceptibility to pressure locking or thermal binding. This review would not exclude valves that are normally open, had a closing function, but were required to reopen at some future time.

Information Request No. 3

From its review of operational experience feedback, the NRC staff is aware of instances in which licensees have completed design or procedural modifications to preclude pressure locking or thermal binding that may have had an adverse impact upon plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe the evaluations and training of plant personnel that you have conducted or plan for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

Response No. 3

At NMP2, design or procedural modifications to preclude pressure locking or thermal binding are evaluated for any adverse impact to plant safety in accordance with plant design change procedures and 10CFR50.59. These changes include technical review per procedure and Station Operations Review Committee (SORC) review. Also, plant modifications are reviewed for incorporation into the plant simulator programming and into Licensed Operator requal training. In addition, SOER 84-7, Pressure Locking and Thermal Binding of Gate Valves, was previously discussed with plant technical staff during continued training.



ENCLOSURE 1

NMP2

**PORTIONS OF PRESSURE LOCKING CALCULATION
A10.1-AD-003**

