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SUBJECT: Responds to Generic Ltr 89-10, "Safety-Related Motor-Operated Valve Testing & Surveillance."

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March 7, 1991
NMP2L 1288

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

Re: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Gentlemen:

Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance", requested Licensees to establish a program to provide for the testing, inspection, and maintenance of safety-related Motor-Operated Valves (MOV's) and certain other MOV's in safety-related systems. Generic Letter 89-10, Supplement 3, "Consideration of the Results of NRC-Sponsored Test of Motor-Operated Valves", was issued on October 25, 1990. Supplement 3 requested that Licensees perform a plant specific safety assessment within 30 days to verify that the generic safety assessments performed by the NRC Staff and BWR Owners Group were applicable. Our letter dated December 14, 1990, (NMP2L 1267), notified the Staff that a plant specific safety assessment had been completed. In addition, Supplement 3 requested that Licensees provide to the Staff within 120 days the criteria reflecting operating experience and the latest test data that were applied in determining if deficiencies exist in the applicable HPCI, RCIC, RWCU and Isolation Condenser MOV's and any MOV's of greater safety significance. Attachment 1 to this letter provides Nine Mile Point Unit 2's 120 day response to Generic Letter 89-10, Supplement 3.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION



C. D. Terry
Vice President
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JMT/lar
Attachment

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ATTACHMENT 1

The following presents Niagara Mohawk's evaluation of Nine Mile Point Unit 2's (NMP2) Reactor Water Cleanup System and Reactor Core Isolation Cooling System containment isolation valves as requested in Generic Letter 89-10, Supplement 3 (NMP2 does not have an HPCI or Isolation Condenser system). In addition, the isolation valves of two other high pressure systems, High Pressure Core Spray (HPCS) and Feedwater (FWS) have been evaluated. The results of the evaluation indicate that the valves will perform their safety function to close/open. For the evaluated gate valves, the available thrust was found to be greater than the design thrust calculated using the industry standard .3 valve factor. The thrust available during 95% of valve travel (torque switch bypassed) was found to be greater than the thrust calculated using a more conservative .5 valve factor. The remaining valves are globe valves and are not specifically addressed in Supplement 3. Therefore, no deficiencies exist.

1. High Pressure Core Spray Isolation Valve 2CSH*MOV107

2CSH*MOV107 is an Anchor Darling 12" gate valve designed for a differential pressure of 1575 psid. It is located on the HPCS pump discharge line outside of containment and its safety function is to open and close. At dead headed conditions the HPCS pump delivers water at approximately 1425 psig. The valve's torque switch is bypassed for 95% of valve travel in both the open and close directions. Using a .3 valve factor, the design thrust required is calculated to be 52,332 lbs. The present torque switch setpoint allows the actuator to develop 64,000 lbs. of thrust as determined by diagnostic testing. However, the actuator is capable of providing 101,192 lbs. of thrust at a degraded voltage condition. Using a .5 valve factor, the design thrust required was calculated to be 82,257 lbs. Therefore, the thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated to close the valve using a .5 valve factor. Further margin is expected because it is doubtful that the HPCS pump deadhead condition will be reached. Also, the inside containment isolation check valve will prevent high differential pressure across 2CSH*MOV107 in the event of a line break outside of containment.

In summary, the available actuator thrust is greater than the thrust calculated using the industry standard .3 valve factor. The thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated using a more conservative .5 valve factor. Therefore, no deficiencies exist.

2. Reactor Core Isolation Cooling Isolation Valve 2ICS*MOV121

2ICS*MOV121 is a Velan 10" gate valve designed for a differential pressure of 1158 psid. It is located outside of containment on the inlet piping of the Reactor Core Isolation Cooling (RCIC) turbine. 2ICS*MOV121's safety function is to open and close. This valve's torque switch is bypassed for 95% of valve travel in the open and close direction. Using a .3 valve factor, the required design thrust is calculated to be 31,075 lbs. The present torque switch setpoint allows the actuator to develop 35,773 lbs. of thrust as interpolated from vendor test data. However, the actuator is capable of providing 43,077 lbs. of thrust at degraded voltage conditions. Using a .5 valve factor, the required design thrust is calculated to be 42,349 lbs. Therefore,



the thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated to close the valve using a .5 friction factor.

In summary, the available actuator thrust is greater than the thrust calculated using the industry standard .3 valve factor. The thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated using a more conservative .5 valve factor. Therefore, no deficiencies exist.

3. Reactor Core Isolation Cooling Isolation Valve 2ICS*MOV128

2ICS*MOV128 is a Velan 10" gate valve designed for a differential pressure of 1158 psid. It is located inside the containment on the inlet piping of the RCIC turbine. The valve's safety function is to open and close. The valve's torque switch is bypassed for 95% of valve travel in both the open and close directions. Using a .3 valve factor, the design thrust required is calculated to be 31,075 lbs. The actuator is capable of providing 43,077 lbs. of thrust at a degraded voltage. Using a .5 valve factor, the design thrust required was calculated to be 42,349 lbs. Therefore, the thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated to close the valve using a .5 valve factor.

In summary, the available actuator thrust is greater than the thrust calculated using the industry standard .3 valve factor. The thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated using a more conservative .5 valve factor. Therefore, no deficiencies exist.

4. Reactor Core Isolation Cooling Isolation Valve 2ICS*MOV170

2ICS*MOV170 is a Velan 1" globe valve designed for a differential pressure of 1158 psid. 2ICS*MOV170 serves as the bypass valve around the RCIC inboard isolation valve and is used to equalize the line pressure across this valve. It is also used to warm the downstream piping. The valve's safety function is to open and close. A 1.1 valve factor was used when determining the required thrust values. The torque switch is bypassed for 95% of valve travel in both the open and close directions. 2ICS*MOV170 is not similar in size or type to those valves tested by Idaho National Engineering Laboratory (INEL). Therefore, the INEL test data is inapplicable.

5. Reactor Water Cleanup Isolation Valve 2WCS*MOV102

2WCS*MOV102 is a Velan 8" globe valve designed for a differential pressure of 1050 psid. It is located inside containment on the Reactor Water Cleanup supply line. The valve's safety function is to close and its torque switch is bypassed 95% in the close direction. A 1.1 valve factor was used when determining the required thrust values. This valve is normally open. 2ICS*MOV102 is not similar in type to those valves tested by INEL. Therefore, the INEL test data is inapplicable.



6. Reactor Water Cleanup Isolation Valve 2WCS*MOV112

2WCS*MOV112 is a Velan 8" globe valve designed for a differential pressure of 1200 psid. It is located outside of containment in the Reactor Water Cleanup supply line. The valve's safety function is to close and its torque switch is bypassed 95% in the closed direction. A 1.1 valve factor was used when determining the required thrust values. This valve is normally open. 2ICS*MOV112 is not similar in type to those valves tested by INEL. Therefore, the INEL test data is inapplicable.

7. Feedwater System Isolation Valves 2FWS*MOV21A/B

2FWS*MOV21A and 2FWS*MOV21B are Velan 24" gate valves designed for a differential pressure of 1380 psid. Both valves are remote manually operated outside containment isolation valves and their safety function is to close. The valve's torque switch is bypassed 95% in the close direction. Using a .3 valve factor, the design thrust required is calculated to be 151,308 lbs. The present torque switch setpoint allows the actuators to develop 167,000 lbs. of thrust at 80% of rated voltage per vendor test. However, at 88.27% of rated voltage (degraded voltage) the actuators have a calculated stall thrust of 239,154 lbs. Using a .5 valve factor, the design thrust required was calculated to be 229,523 lbs. Therefore, the stall thrust available during 95% of valve closing is greater than the thrust calculated to close the valve using a .5 valve factor. These valves are normally open. Downstream containment isolation check valves will prevent high differential pressure across either 2FWS*MOV21A or 2FWS*MOV21B in the event of a line break outside of containment.

In summary, the available actuator thrust is greater than the thrust calculated using the industry standard .3 valve factor. The stall thrust available during 95% of valve travel (torque switch bypassed) is greater than the thrust calculated using a more conservative .5 valve factor. Therefore, no deficiencies exist.

Torque Switch Bypass

As indicated earlier, all safety-related MOVs at NMP2 have their torque switches bypassed for 95% of travel in the safety direction.

For a valve required to open after a Double Ended Guillotine Break (DEGB), as in the case of an Emergency Core Cooling System (ECCS) injection valve, if the valve fails to open for the last 5% of travel (when the torque switch is not bypassed), it will not significantly restrict the flow or affect the safety function of the system. Allowing a portion of the gate disk to impinge on the flow stream when the valve is 95% open will not restrict flow significantly.

If a valve is required to close after a DEGB, as in the case of the RCIC steam supply line valve, and if the valve fails to close for the last 5% of travel, it will significantly reduce the flow. Since two valves are provided in series for containment isolation, the other isolation valve will not be exposed to the high differential pressure condition until it reaches the same degree of closure and would most likely close completely. This will allow the first isolation valve to close due to the balanced pressure condition across the valve.

Degraded Voltage

Degraded Voltage refers to 88.27% of motor rated voltage, which is the lowest voltage to be seen during a degraded voltage condition. This corresponds to approximately 507 volts at the motor terminals of the 575 volt MOVs.

