

July 18, 2000

Mr. John H. Mueller
Chief Nuclear Officer
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SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT NOS. 1 AND 2 - RESPONSE TO
GENERIC LETTER (GL) 96-05, "PERIODIC VERIFICATION OF DESIGN-BASIS
CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES (TAC NOS.
M97071 AND M97072)

Dear Mr. Mueller:

On September 18, 1996, the NRC issued GL 96-05, requesting each nuclear power plant licensee to establish a program, or to ensure the effectiveness of its current program, to verify on a periodic basis that safety-related motor-operated valves (MOV) continue to be capable of performing their safety functions within the current licensing bases of the facility.

On November 18, 1996, Niagara Mohawk Power Corporation (NMPC) submitted a 60-day response to GL 96-05 discussing its plans regarding the requested MOV periodic verification program at Nine Mile Point Nuclear Station, Units 1 and 2. On March 17 and June 9, 1997, NMPC submitted 180-day responses to GL 96-05, providing a summary description of the MOV periodic verification program to be implemented at Unit 2 and Unit 1, respectively. In a letter dated November 19, 1998, NMPC updated its commitment to GL 96-05. On May 11, 1999, NMPC provided a response to a March 11, 1999, request for additional information.

We have reviewed NMPC's submittals and applicable NRC inspection reports for the MOV program at Nine Mile Point. Based on our understanding of NMPC's commitment to all three phases of the Joint Owners Group (JOG) Program on MOV Periodic Verification, we find that NMPC has established an acceptable program to verify periodically the design-basis capability of the safety-related MOVs at Nine Mile Point. As discussed in the enclosed safety evaluation (SE), we conclude that NMPC is adequately addressing the actions requested in GL 96-05. We may conduct inspections at Nine Mile Point to verify the implementation of the MOV periodic

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verification program is in accordance with (1) documented commitments; (2) the enclosed safety evaluation; and (3) the safety evaluation dated October 30, 1997, on the JOG Program on MOV Periodic Verification.

Sincerely,

/RA/

Peter S. Tam, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-220 and 50-410

Enclosure: Safety Evaluation

cc w/encl: See next page

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DATED: July 18, 2000

NINE MILE POINT NUCLEAR STATION, UNIT NOS. 1 AND 2 - RESPONSE TO GENERIC LETTER (GL) 96-05, "PERIODIC VERIFICATION OF DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES (TAC NOS. M97071 AND M97072)

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
LICENSEE RESPONSE TO GENERIC LETTER 96-05, "PERIODIC VERIFICATION OF
DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES"
NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2
DOCKET NUMBERS 50-220 AND 50-410

1.0 INTRODUCTION

Many fluid systems at nuclear power plants depend on the successful operation of motor-operated valves (MOVs) in performing their safety functions. Several years ago, MOV operating experience and testing, and research programs sponsored by the nuclear industry and the U.S. Nuclear Regulatory Commission (NRC), revealed weaknesses in a wide range of activities (including design, qualification, testing, and maintenance) associated with the performance of MOVs in nuclear power plants. For example, some engineering analyses used in sizing and setting MOVs did not adequately predict the thrust and torque required to operate valves under their design-basis conditions. In addition, inservice tests of valve stroke time under zero differential-pressure and flow conditions did not ensure that MOVs could perform their safety functions under design-basis conditions.

Upon identification of the weaknesses in MOV performance, significant industry and regulatory activities were initiated to verify the design-basis capability of safety-related MOVs in nuclear power plants. After completion of these activities, nuclear power plant licensees began establishing long-term programs to maintain the design-basis capability of their safety-related MOVs. This safety evaluation (SE) addresses the program developed by Niagara Mohawk Power Corporation (NMPC or the licensee) to verify periodically the design-basis capability of safety-related MOVs at Nine Mile Point Nuclear Station, Units 1 and 2 (NMP1-2).

2.0 REGULATORY REQUIREMENTS

NRC regulations require that MOVs important to safety be treated in a manner that provides assurance of their intended performance. Criterion 1 to Appendix A, "General Design Criteria for Nuclear Power Plants," to Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR Part 50) states, in part, that structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. The quality assurance program to be applied to safety-related components is described in Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50. In Section 50.55a of 10 CFR Part 50, the NRC requires licensees to establish inservice testing (IST) programs in

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accordance with the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code* (ASME Code), and more recently the ASME *Code for Operation and Maintenance of Nuclear Power Plants*.

In response to concerns regarding MOV performance, NRC staff issued Generic Letter (GL) 89-10 (June 28, 1989), "Safety-Related Motor-Operated Valve Testing and Surveillance," which requested that nuclear power plant licensees and construction permit holders ensure the capability of MOVs in safety-related systems to perform their intended functions by reviewing MOV design bases, verifying MOV switch settings initially and periodically, testing MOVs under design-basis conditions where practicable, improving evaluations of MOV failures and necessary corrective action, and trending MOV problems. The staff requested that licensees complete the GL 89-10 program within approximately three refueling outages, or 5 years, from the issuance of the GL. Permit holders were requested to complete the GL 89-10 program before plant startup or in accordance with the above schedule, whichever was later. The NRC staff issued seven supplements to GL 89-10 that provided additional guidance and information on MOV program scope, design-basis reviews, switch settings, testing, periodic verification, trending, and schedule extensions. GL 89-10 and its supplements provided only limited guidance regarding MOV periodic verification and the measures appropriate to assure preservation of design-basis capability. Consequently, the staff determined that additional guidance on the periodic verification of MOV design-basis capability should be prepared. On September 18, 1996, the NRC staff issued GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," requesting each licensee to establish a program, or ensure the effectiveness of its current program, to verify on a periodic basis that safety-related MOVs continue to be capable of performing their safety functions within the current licensing bases of the facility. In GL 96-05, the NRC staff summarized several industry and regulatory activities and programs related to maintaining long-term capability of safety-related MOVs. For example, GL 96-05 discussed non-mandatory ASME Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor Operated Valve Assemblies in LWR Power Plants, OM Code 1995 Edition; Subsection ISTC," which allows the replacement of ASME Code requirements for MOV quarterly stroke-time testing with exercising of safety-related MOVs at least once per operating cycle and periodic MOV diagnostic testing on a frequency to be determined on the basis of margin and degradation rate. In GL 96-05, the NRC staff stated that the method in OMN-1 meets the intent of the GL with certain limitations. The NRC staff also noted in GL 96-05 that licensees remain bound by the requirements in their code of record regarding MOV stroke-time testing, as supplemented by relief requests approved by the NRC staff.

GL 96-05 requested licensees to submit the following information to the NRC:

- a. within 60 days from the date of GL 96-05, a written response indicating whether or not the licensee would implement the requested actions; and
- b. within 180 days from the date of GL 96-05, or upon notification to the NRC of completion of GL 89-10 (whichever is later), a written summary description of the licensee's MOV periodic verification program.

The NRC staff plans to prepare a SE on the response of each licensee to GL 96-05. The NRC staff intends to rely to a significant extent on an industry initiative to identify valve age-related degradation which could adversely affect the design-basis capability of safety-related MOVs

(described in Section 3.0) where a licensee commits to implement that industry program. The NRC staff will conduct inspections to verify the implementation of GL 96-05 programs at nuclear power plants as necessary.

3.0 JOINT OWNERS GROUP PROGRAM ON MOV PERIODIC VERIFICATION

In response to GL 96-05, the Boiling Water Reactor Owners Group (BWROG), Westinghouse Owners Group (WOG), and Combustion Engineering Owners Group (CEOG) jointly developed an MOV periodic verification program to obtain benefits from the sharing of information among licensees. The Joint Owners Group (JOG) Program on MOV Periodic Verification is described by the BWROG in its Licensing Topical Report NEDC-32719, "BWR Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification," and described by WOG and CEOG in their separately submitted Topical Report MPR-1807, "Joint BWR, Westinghouse and Combustion Engineering Owners' Group Program on Motor-Operated Valve (MOV) Periodic Verification." The stated objectives of the JOG program on MOV Periodic Verification are (1) to provide an approach for licensees to use immediately in their GL 96-05 programs; (2) to develop a basis for addressing the potential age-related increase in required thrust or torque under dynamic conditions; and (3) to use the developed basis to confirm, or if necessary to modify, the applied approach. The specific elements of the JOG program are (1) providing an "interim" MOV periodic verification program for applicable licensees to use in response to GL 96-05; (2) conducting a dynamic testing program over the next 5 years to identify potential age-related increases in required thrust or torque to operate gate, globe, and butterfly valves under dynamic conditions; and (3) evaluating the information from the dynamic testing program to confirm or modify the interim program assumptions.

The JOG interim MOV periodic verification program includes (1) continuation of MOV stroke-time testing required by the ASME Code IST program; and (2) performance of MOV static diagnostic testing on a frequency based on functional capability (age-related degradation margin over and above margin for GL 89-10 evaluated parameters) and safety significance. In implementing the interim MOV static diagnostic test program, licensees will rank MOVs within the scope of the JOG program according to their safety significance. The JOG program specifies that licensees need to justify their approach for risk ranking MOVs. In Topical Report NEDC-32264, "Application of Probabilistic Safety Assessment to Generic Letter 89-10 Implementation," BWROG described a methodology to rank MOVs in GL 89-10 programs with respect to their relative importance to core-damage frequency and other considerations to be added by an expert panel. In an SE dated May 20, 1996, the NRC staff accepted the BWROG methodology for risk ranking MOVs in boiling-water reactor nuclear plants with certain conditions and limitations. In the SE dated October 30, 1997, on the JOG Program on MOV Periodic Verification, the NRC staff indicated its view that the BWROG methodology for MOV risk ranking is appropriate for use in response to GL 96-05. With respect to Westinghouse-designed pressurized-water reactor nuclear plants, WOG prepared Engineering Report V-EC-1658, "Risk Ranking Approach for Motor-Operated Valves in Response to Generic Letter 96-05." On April 14, 1998, the NRC staff issued an SE accepting with certain conditions and limitations the WOG approach for ranking MOVs based on their risk significance. Licensees not applicable to the BWROG or WOG methodologies need to justify their MOV risk-ranking approach individually.

The objectives of the JOG dynamic test program are to determine degradation trends in dynamic thrust and torque, and to use dynamic test results to adjust the test frequency and

method specified in the interim program if warranted. The JOG dynamic testing program includes (1) identification of conditions and features which could potentially lead to MOV degradation; (2) definition and assignment of valves for dynamic testing; (3) testing valves three times over a 5-year interval with at least a 1-year interval between valve-specific tests according to a standard test specification; (4) evaluation of results of each test; and (5) evaluation of collective test results.

In the last phase of its program, JOG will evaluate the test results to validate the assumptions in the interim program to establish a long-term MOV periodic verification program to be implemented by licensees. A feedback mechanism will be established to ensure timely sharing of MOV test results among licensees and to prompt individual licensees to adjust their own MOV periodic verification program, as appropriate.

Following consideration of NRC staff comments, BWROG submitted Licensing Topical Report NEDC-32719 (Revision 2) describing the JOG program on July 30, 1997. Similarly, CEOG and WOG submitted Topical Report MPR-1807 (Revision 2) describing the JOG program on August 6 and 12, 1997, respectively. On October 30, 1997, the NRC staff issued an SE accepting the JOG program with certain conditions and limitations as an acceptable industry-wide response to GL 96-05 for valve age-related degradation. On October 19, 1999, the Babcock & Wilcox Owners Group (B&WOG) submitted Topical Report MPR-1807 (Revision 2) to the NRC, and stated that B&WOG is now participating in the JOG Program on MOV Periodic Verification. In a letter dated May 15, 2000, the NRC staff informed B&WOG that Topical Report MPR-1807 is acceptable for referencing in B&WOG licensing applications to the extent specified and under the limitations delineated in the report and the associated NRC SE dated October 30, 1997.

4.0 NINE MILE POINT GL 96-05 PROGRAM

On November 18, 1996, NMPC submitted a 60-day response to GL 96-05 discussing its plans regarding the requested MOV periodic verification program at Nine Mile Point, Units 1 and 2. On March 17 and June 9, 1997, NMPC submitted 180-day responses to GL 96-05 providing a summary description of the MOV periodic verification program to be implemented at Unit 2 and Unit 1, respectively. In a letter dated November 19, 1998, the licensee updated its commitment to GL 96-05. On May 11, 1999, the licensee provided a response to a staff request for additional information dated March 11, 1999.

In its letters dated March 17 and June 9, 1997, the licensee described its MOV periodic verification program, including scope, existing and planned testing, and implementation of the JOG program for each of the individual reactor units at Nine Mile Point. For example, the licensee indicated that the interim MOV static diagnostic test program at Nine Mile Point applied MOV risk insights to prioritize periodic test activities, such as test frequency and selection of valves to be tested. The licensee also stated that dynamic testing of selected MOVs would be performed under its MOV periodic verification program. The licensee stated that adjustments would be made to its GL 96-05 program based on the test results and recommendations from the JOG testing program. In its letter dated November 19, 1998, the licensee committed to implement the guidance of Topical Report NEDC-32719 (Revision 2) describing the JOG program, and did not identify any deviations from the JOG program. In a telephone conference with the NRC staff on June 19, 2000, the licensee clarified certain aspects of its GL 96-05

program (see publicly available memorandum, P. Tam to M. Gamberoni, May 23, 2000, for issues discussed in the conference).

5.0 NRC STAFF EVALUATION

The NRC staff has reviewed the information provided in the licensee's submittals describing the program to verify periodically the design-basis capability of safety-related MOVs at Nine Mile Point, in response to GL 96-05. NRC Inspection Report (IR) 50-220 & 410/97-09 provided the results of inspections to evaluate the licensee's program to verify the design-basis capability of safety-related MOVs in response to GL 89-10. The staff closed the review of the GL 89-10 program at Nine Mile Point based on the actions taken and planned to verify the design-basis capability of safety-related MOVs as described in IR 97-09 and the licensee's letter dated September 30, 1997. The staff's evaluation of the licensee's response to GL 96-05 is described below.

5.1 MOV Program Scope

In GL 96-05, the NRC staff indicated that all safety-related MOVs covered by the GL 89-10 program should be considered in the development of the MOV periodic verification program. The staff noted that the program should consider safety-related MOVs that are assumed to be capable of returning to their safety position when placed in a position that prevents their safety system (or train) from performing its safety function; and the system (or train) is not declared inoperable when the MOVs are in their nonsafety position.

In IR 97-09, the NRC staff reviewed the scope of the licensee's MOV program in response to GL 89-10 at Nine Mile Point. In that inspection, the staff found that the licensee had eliminated Unit 1 containment spray MOVs 80-114 and 80-115 from the scope of its MOV program because the Technical Specifications limiting condition for operation is entered when the valves are opened. The staff considered this scope change to be consistent with GL 89-10 and its supplements. In IR 97-09, the staff also noted that the GL 89-10 program at Nine Mile Point included 37 MOVs in Unit 1 and 177 MOVs in Unit 2. The licensee reported that the GL 96-05 program continues to include 37 MOVs in Unit 1 in its letter dated June 9, 1997, and 177 MOVs in Unit 2 in its letter dated March 17, 1997. In those letters, the licensee did not take exception to the scope of GL 96-05.

The NRC staff considers the licensee to have made adequate commitments regarding the scope of its MOV program.

5.2 MOV Assumptions and Methodologies

Licensees maintain their assumptions and methodologies used in the development of MOV programs consistent with the plant configuration throughout the life of the plant (a concept commonly described as a "living program"). For example, the design-basis of safety-related MOVs is maintained up to date, including consideration of any plant modifications or power uprate conditions.

In IR 97-09, the NRC staff reviewed the licensee's justification for the assumptions and methodologies used in the MOV program in response to GL 89-10 at Nine Mile Point. With certain long-term items discussed in the following section, the staff determined that the licensee

had adequately justified the assumptions and methodologies used in its MOV program. The licensee's letter dated May 11, 1999, indicated ongoing activities, such as review of motor actuator output, to update its MOV program assumptions and methodologies. The staff considers the licensee to have adequate processes in place to maintain the assumptions and methodologies used in its MOV program, including the design basis of its safety-related MOVs.

5.3 GL 89-10 Long-Term Items

When evaluating the GL 89-10 program at Nine Mile Point, the NRC staff discussed in IR 97-09 several items of the licensee's MOV program to be addressed over the long term. In its letter dated May 11, 1999, the licensee reported on the status of those long-term GL 89-10 aspects. In particular, the licensee (1) replaced Unit 1 reactor water cleanup double-disc gate valve 33-01 during the spring 1999 refueling outage (RFO) with a new flex-wedge gate valve sized using the Electric Power Research Institute (EPRI) MOV Performance Prediction Methodology (PPM); (2) reviewed the operating conditions for Unit 1 feedwater valves 31-07 and 31-08, and used the EPRI MOV PPM to validate the method of determining thrust requirements for the valves; and (3) completed modifications to increase the actuator output capability of Unit 2 main steam drain valves 2MSS*MOV111 and 2MS*MOV112 during the spring 1998 RFO. Also in GL 89-10, the NRC staff identified pressure locking and thermal binding as potential performance concerns for safety-related MOVs. The NRC staff completed the review of the licensee's actions in response to GL 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," in an SE dated May 17, 1999.

In IR 97-09, the NRC staff discussed qualitative and quantitative aspects of the licensee's program for trending MOV performance at Nine Mile Point. In particular, the staff reported that the Nine Mile Point MOV trending procedure met the intent of GL 89-10. The procedure specifies ongoing collection of performance data and generation of a comprehensive report of findings every 2 years. Examples of areas discussed in the trending report were (1) problems identified during static testing, such as valve/disk guide deterioration, actuator-to-valve misalignment, actuator component degradation, loose stem nut lock nuts, and worn stem nuts; (2) general performance trends identified during diagnostic testing, such as the effectiveness of past stem lubricant replacement, an apparent increase in thrust output over time for the same torque output, and higher wedge pullout forces for non-vertically mounted MOVs; (3) MOV corrective action that occurred over the period; and (4) specific potential problem areas highlighted by the review of MOV diagnostic test data. The licensee initiated action in response to identified adverse trends. In letters dated March 17 and June 9, 1997, the licensee verified that review of test results from MOV periodic verification activities will be procedurally controlled including provisions for (1) identification of adverse or improving trends; (2) a biennial summary review of test results and program adjustments made based on these reviews; (3) adjustments to the MOV periodic verification program as appropriate based on feedback from the JOG program and other industry information; and (4) performance of sufficient as-found and as-left testing to evaluate the effect of maintenance on MOV performance.

With the licensee's ongoing MOV activities and trending program, no outstanding issues regarding the licensee's GL 89-10 program remain at Nine Mile Point.

5.4 JOG Program on MOV Periodic Verification

In its letter dated November 19, 1998, the licensee updated its commitment to implement the JOG Program on MOV Periodic Verification as described in Topical Report NEDC-32179 (Revision 2). In an SE dated October 30, 1997, the NRC staff accepted the JOG program as an industry-wide response to GL 96-05 with certain conditions and limitations. The JOG program consists of the following three phases: (1) the JOG interim static diagnostic test program; (2) the JOG 5-year dynamic test program; and (3) the JOG long-term periodic test program. The staff considers the licensee's commitment in response to GL 96-05 to include implementation of all three phases of the JOG program at Nine Mile Point. The conditions and limitations discussed in the NRC's SE dated October 30, 1997, apply to the JOG program at Nine Mile Point. During the telephone conference on June 19, 2000, the licensee clarified that it initiated implementation of the JOG interim static diagnostic test program at Nine Mile Point in 1998. The staff considers the commitments by the licensee to implement all three phases of the JOG program at Nine Mile Point to be an acceptable response to GL 96-05 for valve age-related degradation.

In its letters dated March 17 and June 9, 1997, the licensee noted that interim MOV static diagnostic testing under the JOG program would be performed on a test frequency based on the safety significance and functional capability of each GL 96-05 MOV. In its letter dated May 11, 1999, the licensee described its approach for risk ranking MOVs at Nine Mile Point. The licensee's method grouped MOVs at Nine Mile Point into two categories based on risk importance measures. Licensee personnel experienced in probabilistic risk assessment, MOV issues, and operations and maintenance participated in and reviewed the evaluations of risk importance and prioritization of MOVs. The licensee's methodology included consideration of Level 2 probabilistic risk assessments, shutdown, external events, and common cause failure. The licensee considers its MOV risk-ranking method to be more conservative than the approach described in BWROG Topical Report NEDC-32264. For example, the licensee's risk importance threshold was two orders of magnitude lower than the criterion used in the BWROG methodology to determine risk-significant MOVs. During the telephone conference on June 19, 2000, the licensee discussed the comparison of the risk-significant MOVs at Nine Mile Point to the example list of risk-significant MOVs in the BWROG topical report. Based on the licensee's submittals, the NRC staff considers the licensee's methodology for risk ranking MOVs at Nine Mile Point to be acceptable.

The JOG program is intended to address most gate, globe and butterfly valves used in safety-related applications in the nuclear power plants of participating licensees. JOG indicates that each licensee is responsible for addressing any MOVs outside the scope of applicability of the JOG program. The NRC staff recognizes that JOG has selected a broad range of MOVs and conditions for the dynamic testing program, and that significant information will be obtained on the performance and potential degradation of safety-related MOVs during the interim static diagnostic test program and the JOG dynamic test program. As the test results are evaluated, the JOG might include or exclude additional MOVs with respect to the scope of its program. Although the test information from the MOVs in the JOG dynamic test program might not be adequate to establish a long-term periodic verification program for each MOV outside the scope of the JOG program, sufficient information should be obtained from the JOG dynamic test program to identify any immediate safety concern for potential valve age-related degradation during the interim period of the JOG program. Therefore, the NRC staff considers it acceptable for the licensee to apply its interim static diagnostic test program to GL 96-05 MOVs that

currently might be outside the scope of the JOG program with the feedback of information from the JOG dynamic test program to those MOVs. In the SE dated October 30, 1997, the NRC staff specifies that licensees implementing the JOG program must determine any MOVs outside the scope of the JOG program (including service conditions) and justify a separate program for periodic verification of the design-basis capability (including static and dynamic operating requirements) of those MOVs.

5.5 Motor Actuator Output

The JOG program focuses on the potential age-related increase in the thrust or torque required to operate valves under their design-basis conditions. In the SE dated October 30, 1997, on the JOG program, the NRC staff specifies that licensees are responsible for addressing the thrust or torque delivered by the MOV motor actuator and its potential degradation. Although JOG does not plan to evaluate degradation of motor actuator output, significant information on the output of motor actuators will be obtained through the interim MOV static diagnostic test program and the JOG dynamic test program. Several parameters obtained during MOV static and dynamic diagnostic testing help identify motor actuator output degradation when opening and closing the valve including, as applicable, capability margin, thrust and torque at control switch trip, stem friction coefficient, load-sensitive behavior, and motor current.

In its letters dated March 17 and June 9, 1997, the licensee stated that its MOV periodic verification program at Nine Mile Point addresses potential degradation that can result in a decrease in output capability of motor actuators. The licensee performs static MOV testing to confirm the capability of the motor actuator to provide the required torque. The licensee noted that sufficient as-found and as-left testing is performed to monitor potential stem lubricant degradation. In IR 97-09, the NRC staff reported that the licensee's MOV periodic verification program includes monitoring of load-sensitive behavior and on-going assessments of MOV program design assumptions.

In Technical Update 98-01 and its Supplement 1, Limitorque Corporation provided updated guidance for predicting the torque output of its ac-powered motor actuators. In its letter dated May 11, 1999, the licensee reported that it was evaluating the updated Limitorque guidance. The licensee stated that it had reviewed each MOV in its program using the recommended 0.9 application factor, or a more conservative value of 0.8 in certain circumstances. The licensee reported that no MOV operability concerns were identified. However, the licensee identified a number of MOVs to be modified or have their torque switch settings adjusted to increase capability margin. The licensee stated that several MOVs were modified during the spring 1999 RFO at Nine Mile Point. The licensee was evaluating the use of various methods to predict MOV actuator output under degraded voltage conditions. Any MOV operability concerns that might be identified in the future will be processed in accordance with established regulatory requirements and plant-specific commitments.

In its letter dated July 17, 1998, forwarding Technical Update 98-01, Limitorque indicates that a future technical update will be issued to address the application of dc-powered MOVs. During the telephone conference on June 19, 2000, the licensee clarified that it uses a 0.9 application factor in its dc-powered MOV motor torque capability calculations and that dc-powered MOV motor torque at Nine Mile Point is calculated in accordance with Limitorque guidance. The licensee will evaluate any new dc-powered MOV output information and process this

information in accordance with established regulatory requirements and plant-specific commitments.

The NRC staff considers the licensee to be establishing sufficient means to monitor MOV motor actuator output and its potential degradation.

6.0 CONCLUSION

The NRC staff finds that the licensee has established an acceptable program to verify periodically the design-basis capability of the safety-related MOVs at Nine Mile Point through its commitment to all three phases of the JOG Program on MOV Periodic Verification, and the additional actions described in its submittals. Therefore, the staff concludes that the licensee is adequately addressing the actions requested in GL 96-05. The staff may conduct inspections at Nine Mile Point to verify the implementation of the MOV periodic verification program is in accordance with (1) the licensee's commitments; (2) this safety evaluation; and (3) the NRC SE dated October 30, 1997, on the JOG Program on MOV Periodic Verification.

Principal Contributor: Thomas Scarbrough

Date: July 18, 2000

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