February 7, 2001

Mr. D. N. Morey
Vice President - Farley Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 RE: SAFETY EVALUATION OF LICENSEE RESPONSE TO GENERIC LETTER 96-05 (TAC NOS. M97045 AND M97046)

Dear Mr. Morey:

On September 18, 1996, the U. S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," 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 (MOVs) continue to be capable of performing their safety functions within the current licensing bases of the facility.

On November 7, 1996, Southern Nuclear Operating Company, Inc., submitted a 60-day response to GL 96-05 notifying the NRC that it would review its MOV program at Joseph M. Farley Nuclear Plant, Units 1 and 2, to determine whether any changes were appropriate in light of the information contained in GL 96-05. On March 14, 1997, the licensee submitted a 180-day response to GL 96-05 providing an initial summary description of its MOV periodic verification program. The licensee provided an updated GL 96-05 submittal on June 10, 1998. On May 28 and September 13, 1999, the licensee responded to NRC letters dated March 17 and April 30, 1999. On September 22, 2000, the licensee provided additional information on its GL 96-05 program.

The staff has reviewed the licensee's submittals and applicable NRC inspection reports for the MOV program at Farley. The staff finds that the licensee has established an acceptable program to verify periodically the design-basis capability of the safety-related MOVs at Farley through its development of an interim MOV static diagnostic test program; its commitment to the 5-year MOV dynamic test program (Phase 2) and the long-term MOV periodic test program (Phase 3) of the Joint Owners Group (JOG) program on MOV periodic verification; and the additional actions described in its submittals. As discussed in the enclosed safety evaluation (SE), the staff concludes that the licensee is adequately addressing the actions requested in GL 96-05. The staff may conduct inspections at Farley to verify that the implementation of the

MOV periodic verification program is in accordance with the licensee's commitments discussed in the enclosed SE and the conditions and limitations in the NRC SE dated October 30, 1997, applicable to Phases 2 and 3 of the JOG program on MOV periodic verification.

This closes the staff's efforts on TAC Nos. M97045 and M97046.

Sincerely,

/RA/

Frank Rinaldi, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosure: Safety Evaluation

cc w/encl: See next page

MOV periodic verification program is in accordance with the licensee's commitments discussed in the enclosed SE and the conditions and limitations in the NRC SE dated October 30, 1997, applicable to Phases 2 and 3 of the JOG program on MOV periodic verification.

This closes the staff's efforts on TAC Nos. M97045 and M97046.

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cc w/ encl: See next page

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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,"

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-348 AND 50-364

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 Southern Nuclear Operating Company, Inc., (the licensee) to verify periodically the design-basis capability of safety-related MOVs at Joseph M. Farley Nuclear Plant, Units 1 and 2.

2.0 REGULATORY REQUIREMENTS

The 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 accordance with the American Society of Mechanical

Engineers (ASME) Boiler and Pressure Vessel Code, and more recently the ASME Code for Operation and Maintenance of Nuclear Power Plants.

In response to concerns regarding MOV performance, the 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 generic letter. 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 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." OMN-1 allows the 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 instead of the ASME Code requirements for MOV quarterly stroke-time testing. In GL 96-05, the NRC staff stated that the method in OMN-1 meets the intent of the generic letter with certain limitations. The 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 staff.

In GL 96-05, licensees were requested 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 staff is preparing an SE on the response of each licensee to GL 96-05. The 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 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 between 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 the WOG and the 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," the 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 February 27, 1996, the staff accepted the BWROG methodology for risk ranking MOVs in boiling water reactor nuclear plants with certain conditions and limitations. In the NRC SE dated October 30, 1997, on the JOG program on MOV periodic verification, the 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, the 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 staff issued an SE accepting with certain conditions and limitations the WOG approach for ranking MOVs based on their risk significance. Licensees with plants to which the BWROG or WOG methodologies do not apply 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) identifying of conditions and features which could potentially lead to MOV degradation; (2) defining and assigning 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) evaluating of results of each test; and (5) evaluating collective test results.

In the last phase of its program, the 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 staff comments, the BWROG on July 30, 1997, submitted Licensing Topical Report NEDC-32719 (Revision 2) describing the JOG program. Similarly, on August 6, 1997, the CEOG and on August 12, 1997, the WOG submitted Topical Report MPR-1807 (Revision 2) describing the JOG program. On October 30, 1997, the 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) forwarded Topical Report MPR-1807 (Revision 2) to the NRC, and stated that the B&WOG is now participating in the JOG program on MOV periodic verification. In a letter dated May 15, 2000, the staff informed the 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 FARLEY GL 96-05 PROGRAM

On November 7, 1996, the licensee submitted a 60-day response to GL 96-05 notifying the NRC that the licensee would review its MOV program at Joseph M. Farley Nuclear Plant, Units 1 and 2, to determine whether any changes were appropriate in light of the information contained in GL 96-05. On March 14, 1997, the licensee submitted a 180-day response to GL 96-05 providing an initial summary description of its MOV periodic verification program. The licensee provided an updated GL 96-05 submittal on June 10, 1998. On May 28 and September 13, 1999, the licensee responded to NRC letters dated March 17 and April 30, 1999. On September 22, 2000, the licensee provided additional information on its GL 96-05 program.

In its letter dated March 14, 1997, the licensee described the Farley MOV periodic verification program, including scope, static test frequency, planned dynamic testing, MOV risk ranking, and participation in the JOG program. In its letters dated June 10, 1998, and May 28,1999, the licensee clarified its commitment to the JOG program. The licensee stated that its interim MOV static diagnostic test program uses a combination of at-the-valve and motor control center (MCC) testing, and applies criteria-based and time-based methods in establishing the test frequency. The licensee did not commit to the JOG interim MOV static test program (Phase 1 of the JOG program). However, with the exception of low risk MOVs with low margin, the

licensee's interim MOV static test frequency is equivalent or more conservative than the JOG interim static test frequency. The licensee committed to the JOG 5-year dynamic test program (Phase 2) and the JOG long-term MOV periodic test program (Phase 3). The licensee described its MOV risk-ranking approach using existing plant probabilistic risk assessment (PRA) capabilities and an expert panel. The licensee did not apply the WOG MOV risk-ranking methodology described in Engineering Report V-EC-1658, but compared the WOG example list of risk-significant MOVs to the Farley MOV ranking results and found them identical except for valve applications not present at Farley.

5.0 NRC STAFF EVALUATION

The staff has reviewed the information provided in the licensee's submittals that responded to GL 96-05. These submittals describe the program to verify periodically the design-basis capability of safety-related MOVs at Farley. NRC Inspection Reports 50-348 & 364/94-10 and 94-28 (IRs 94-10 and 94-28) provided the results of inspections to evaluate the licensee's program at Farley to verify the design-basis capability of safety-related MOVs in response to GL 89-10. In a letter dated November 9, 1995, the staff closed the review of the GL 89-10 program at Farley, based on the results documented in IRs 94-10 and 94-28 and information contained in a letter from the licensee dated March 3, 1995. 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 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 a letter dated November 7, 1996, the licensee did not take exception to the scope of GL 96-05. In its letter dated March 14, 1997, the licensee stated that the scope of MOVs in its GL 96-05 program is identical to the scope of MOVs in its GL 89-10 program. The staff did not identify any concerns regarding the scope of the licensee's MOV program in IRs 94-10 and 94-28.

The 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 IRs 94-10 and 94-28, the NRC staff reviewed the licensee's justification for the assumptions and methodologies used in the MOV program at Farley which was instituted in response to

GL 89-10. 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 letters dated May 28, 1999, and September 22, 2000, indicated ongoing activities, such as review of motor actuator output, plans to evaluate its setup methodology for certain Pratt butterfly MOVs and plans 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 Farley, the staff discussed in IR 94-28 several items of the licensee's MOV program to be addressed over the long term. In IRs 95-21 and 96-13, the staff reviewed some of those long-term MOV items. In its letter dated May 28, 1999, the licensee reported on the status of additional long-term MOV items. For example, the licensee reevaluated the capability of MOVs Q1E11MOV8811A and Q2E11MOV8812A to open under design-basis accident conditions using in-plant test data. The licensee also performed evaluations and assigned a more frequent test interval to several MOVs that did not obtain the target margin after their torque switch settings were increased. The licensee evaluated each of these MOVs and found them acceptable at their current settings. The licensee used in-plant dynamic testing of two butterfly valves to support application of the setup methodology for Pratt butterfly valves. In its letter dated September 22, 2000, the licensee stated that it planned to use information obtained from the JOG test results to further support its setup methodology for Pratt butterfly valves 30 inches and larger in size as the information becomes available. Also in GL 89-10, the 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 4, 1999.

In IR 94-28, the staff discussed qualitative and quantitative aspects of the licensee's program for trending MOV performance at Farley. For example, the licensee reviews MOV maintenance documents and enters test data and maintenance histories into a computerized database with the capability to trend various MOV information. The licensee periodically evaluates this information to identify and correct recurring problems and to detect MOV degradations. The staff concluded that the licensee had implemented an adequate computer program that met the recommendations of GL 89-10 for trending degradation of MOVs. In its letter dated March 14, 1997, the licensee indicated that the amount of total margin associated with a given MOV is formally monitored and tracked.

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

5.4 JOG Program on MOV Periodic Verification

In an SE dated October 30, 1997, the 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. In its letters dated June 10, 1998, and May 28,1999, the licensee clarified its commitment to the JOG program.

The licensee described its interim MOV static diagnostic test program as using a combination of at-the-valve and MCC testing and applying criteria-based and time-based methods in establishing the test frequency. The licensee did not commit to the JOG interim MOV static test program (Phase 1 of the JOG program). However, with the exception of low risk MOVs with low margin, the licensee's interim program requires MOV testing at the same or more frequent intervals as the JOG interim program. The licensee's interim MOV static test frequency for low risk, low margin MOVs is one test every 4 cycles while the frequency for these MOVs in the JOG interim program is one test every 3 cycles. In its letter dated September 13, 1999, the licensee stated that the test frequency will ensure that at least one valve from each valve group will be tested at least once every 5 years. The licensee committed to the JOG 5-year dynamic test program (Phase 2) and the JOG long-term MOV periodic test program (Phase 3). The staff considers the licensee's interim MOV static diagnostic test program and the commitments by the licensee to Phases 2 and 3 of the JOG program to be an acceptable response to GL 96-05 for valve age-related degradation.

In its letter dated March 14, 1997, the licensee described the MOV risk-ranking approach at Farley as using existing plant PRA capabilities and an expert panel. The licensee did not apply the WOG MOV risk-ranking methodology described in Engineering Report V-EC-1658, but compared the WOG example list of risk-significant MOVs to the Farley MOV ranking results and found them identical except for valve applications not present at Farley. The staff considers the licensee's approach to risk-ranking MOVs at Farley to be acceptable.

In its letter dated May 28, 1999, the licensee indicated that MOV diagnostic methods that acquire data from the MCC have been incorporated into its interim static test program and are used to reduce the frequency of at-the-valve testing. For example, the licensee stated that (1) the correlation of new test data to existing direct force measurements is accomplished by the appropriate acceptance criteria; (2) interpretation of MCC test data changes is performed by comparing measured motor torque and Fast Fourier Transform data to existing acceptance criteria and previous test results; (3) MCC testing is a valuable post-maintenance tool due to its high sensitivity to motor output torque changes; and (4) MCC diagnostic system inaccuracies are taken into accounted by the test acceptance criteria. The licensee applies MCC test data by comparing measured motor output torque (from the MCC) to established acceptance criteria, and by using parallel testing performed at the valve and at the MCC to develop correlation factors that relate subsequent MCC measurements to actuator output. The licensee stated that the use of MCC valve testing at Farley is temporary and will not be used in its long-term periodic verification program unless the methodology is approved by JOG.

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. The JOG indicates that each licensee is responsible for addressing any MOVs outside the scope of applicability of the JOG program. The 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 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 NRC SE dated October 30, 1997, the staff specified that licensees implementing the JOG program must determine if any MOVs are 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 staff specified that licensees are responsible for addressing the thrust or torque delivered by the MOV motor actuator and its potential degradation. Although the 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 letter dated March 14, 1997, the licensee indicated that the amount of total margin associated with a given MOV is formally monitored and tracked. In its letter dated May 28, 1999, the licensee indicated that, to ensure adequate actuator output capability for safety-related MOVs at Farley to perform their design-basis functions, it uses a combination of at-the-valve diagnostic testing and MCC diagnostic testing in accordance with established site procedures and programs. For example, in IR 94-28, the staff reported that the licensee is monitoring for MOV performance through periodic examination of MOV degradation and failure data.

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 28, 1999, the licensee reported that it had evaluated its GL 96-05 ac-powered MOVs using the guidance contained in Technical Update 98-01. The licensee reported that the current field settings were acceptable for all MOVs, and that the results are being incorporated into MOV program-related calculations. The licensee stated that the MOV setpoint documents are being updated to reflect the new output values and that the updates will be completed prior to the next refueling outage for each unit. The licensee also noted that there are not any dc-powered motor actuators at Farley and that it no longer uses actuator stall testing to establish the reduced voltage actuator capability discussed in IR 94-28.

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

6.0 CONCLUSION

The NRR staff finds that the licensee has established an acceptable program to verify periodically the design-basis capability of the safety-related MOVs at Farley through its development of an interim MOV static diagnostic test program its commitment to the 5-year MOV dynamic test program (Phase 2) and the long-term MOV periodic test program (Phase 3) of the JOG Program on MOV periodic verification and the additional actions described in its submittals. Therefore, the staff concludes that the licensee has adequately addressed the actions requested in GL 96-05. The staff may conduct inspections at Farley to verify that the implementation of the MOV periodic verification program is in accordance with the licensee's commitments discussed in this SE; and the conditions and limitations in the NRC SE dated October 30, 1997, applicable to Phases 2 and 3 of the JOG Program on MOV Periodic Verification.

Principal Contributor: T. Scarbrough

Date: February 7, 2001

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