

May 8, 2000

Mr. John S. Keenan, Vice President
Carolina Power & Light Company
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

SUBJECT: BRUNSWICK 1 AND 2 - COMPLETION OF LICENSING ACTION FOR
GENERIC LETTER 96-05, "PERIODIC VERIFICATION OF DESIGN-BASIS
CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES" (TAC
NOS. M97023 AND M97024)

Dear Mr. Keenan:

On September 18, 1996, the 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 18, 1996, you submitted a 60-day response to GL 96-05 notifying the NRC that you would implement an MOV periodic verification program that will comply with the intent of the GL at the Brunswick Steam Electric Plant, Unit Nos. 1 and 2. On March 17, 1997, you submitted a 180-day response to GL 96-05 providing a summary description of the planned MOV periodic verification program. In a letter dated October 27, 1998, you updated your commitment to the GL. On December 20, 1999, you provided a response to a request for additional information regarding GL 96-05.

The NRC staff has reviewed your submittals and applicable NRC inspection reports for the MOV program at Brunswick. The staff finds that you have established an acceptable program to periodically verify the design-basis capability of the safety-related MOVs at Brunswick through your commitments to all three phases of the Joint Owners Group (JOG) Program on MOV Periodic Verification and the additional actions described in your submittals. As discussed in the enclosed Safety Evaluation (SE), the staff concludes that you are adequately addressing the actions requested in GL 96-05. The staff may conduct inspections at Brunswick to verify the implementation of the MOV periodic verification program is in accordance with your commitments; this NRC SE; the NRC SE dated October 30, 1997, on the JOG Program on

J. Keenan

- 2 -

MOV Periodic Verification; and the NRC SE dated February 27, 1996, on the Boiling Water Reactors Owners Group methodology for ranking MOVs by their safety significance.

If you have any questions regarding this matter, please contact me.

Sincerely,

/RA/

Allen G. Hansen, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosure: Safety Evaluation

cc w/encl: See next page

MOV Periodic Verification; and the NRC SE dated February 27, 1996, on the Boiling Water Reactors Owners Group methodology for ranking MOVs by their safety significance.

If you have any questions regarding this matter, please contact me.

Sincerely,

/RA/

Allen G. Hansen, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION: PUBLIC PDII Rdg. OGC ACRS
BBonser, RII TScarborough

Accession Number ML003712627

* No substantive change to SE

OFFICE	PM:PD22	LA:PD22	SC:EMEB	SC:PD22
NAME	AHansen	EDunnington	DTerao *	RCorreia
DATE	5/8/00	5/8/00	5/2/00	5/8/00

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE LICENSEE RESPONSE TO

GENERIC LETTER 96-05, "PERIODIC VERIFICATION OF DESIGN-BASIS

CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES,"

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

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 Carolina Power & Light Company (the licensee) to verify periodically the design-basis capability of safety-related MOVs at the Brunswick Steam Electric Plant, Unit Nos. 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, 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 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.

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 NRC staff is preparing an 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 between licensees. The Joint Owners Group (JOG) Program on MOV Periodic Verification is described by 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 February 27, 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 NRC 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, the BWROG submitted Licensing Topical Report NEDC-32719 (Revision 2) describing the JOG program on July 30, 1997. Similarly, the CEOG and the 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.

4.0 BRUNSWICK GL 96-05 PROGRAM

On November 18, 1996, Carolina Power & Light Company submitted a 60-day response to GL 96-05 notifying the NRC that it would implement an MOV periodic verification program that will comply with the intent of GL 96-05 at Brunswick. On March 17, 1997, the licensee submitted a 180-day response to GL 96-05 providing a summary description of the planned MOV periodic verification program. In a letter dated October 27, 1998, the licensee updated its commitment to GL 96-05. On December 20, 1999, the licensee provided a response to a request for additional information regarding GL 96-05.

In its letter dated March 17, 1997, the licensee described its MOV periodic verification program, including scope, planned testing, MOV risk ranking, and implementation of the JOG program at Brunswick. For example, the licensee indicated that the interim MOV static diagnostic test program at Brunswick would apply MOV risk and margin threshold values consistent with the JOG periodic verification program. The licensee indicated that MOV risk ranking at Brunswick was performed in accordance with Topical Report NEDC-32264. The licensee also noted that dynamic testing of selected MOVs would be conducted to support the JOG dynamic test program. The licensee stated that the results of the JOG dynamic testing program would be appropriately incorporated into the MOV periodic verification program at Brunswick. In its letter dated October 27, 1998, the licensee committed to implement Topical Report NEDC-32719

(Revision 2) describing the JOG program and clarified that it would implement the JOG interim MOV static diagnostic test program after completion of the refueling outage scheduled to begin in early 1999. In its letter dated December 20, 1999, the licensee described the results of its evaluation of MOV actuator output.

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 Brunswick in response to GL 96-05. NRC Inspection Reports (IRs) 50-325, 324/94-20, 97-11, 98-03, 98-10, and 00-02, 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 Brunswick based on the results documented in IR 98-03 and the licensee's plan to resolve a number of outstanding MOV issues as described in a letter dated March 20, 1998. 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 98-03, the NRC staff reported the results of the licensee's reevaluation of a number of MOVs that were removed from or not included in the original scope of the Brunswick GL 89-10 program. Based upon this reevaluation, the licensee added a number of MOVs to its GL 89-10 program. The NRC staff found that the revised MOV program scope met the intent of GL 89-10 and its supplements. In a letter dated November 18, 1996, the licensee committed to implement the requested MOV periodic verification program at Brunswick in response to GL 96-05 and did not take exception to the scope of the GL. In its letter dated March 17, 1997, the licensee indicated that the scope of its MOV periodic verification program is identical to the scope of its GL 89-10 program.

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 98-03, the NRC staff closed its review of the licensee's justification for the assumptions and methodologies used in the MOV program at Brunswick. With the 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 December 20, 1999, indicated ongoing activities, such as measurement of stem coefficient of friction, to update 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 Brunswick, the NRC staff discussed in IR 98-03 a significant number of items in the licensee's MOV program to be addressed over the long term. In its letter dated March 20, 1998, the licensee provided a specific description and schedule for the completion of the long-term MOV items, such as (1) modifications to enhance MOV capability margins; (2) dynamic testing of many gate, globe, and butterfly valves; (3) diagnostic testing to evaluate the performance of ball screw valves; (4) evaluation of the limitations in the NRC SE on the Electric Power Research Institute MOV Performance Prediction Methodology for Anchor-Darling double-disk gate valves; and (5) an industry survey of the valve factor measured for globe valves similar to those installed at Brunswick. The staff documented its review of the licensee's actions to resolve most of these long-term MOV items in IRs 98-10 and 00-02. However, a few long-term items remain to be completed, such as dynamic testing of particular MOVs. In its letter dated March 20, 1998, the licensee committed to notify the NRC by January 31, 2001, of the MOV program status after completion of the long-term items. 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 its 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 December 3, 1999.

In IR 94-20, the NRC staff discussed quantitative and qualitative aspects of the licensee's program for trending MOV performance at Brunswick. For example, the licensee periodically reviews MOV failures and documents the results of the review in trend reports. Trend reports also summarize any MOV significant problems that occurred during the assessment period. The NRC staff reported that the licensee's MOV trending program met the recommendations of GL 89-10 and its supplements. In its letter dated December 20, 1999, the licensee stated that stem friction coefficient and rate of loading are examples of MOV parameters that are monitored to ensure that the MOVs remain capable of performing their design-basis functions.

The NRC staff considers the licensee's ongoing actions to be reasonable to resolve the remaining long-term items from the GL 89-10 program at Brunswick.

5.4 JOG Program on MOV Periodic Verification

In its letter dated October 27, 1998, the licensee updated its commitment to implement the JOG Program on MOV Periodic Verification as described in Topical Report 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 Brunswick. The conditions and limitations discussed in the NRC SE dated October 30, 1997, apply to the JOG program at Brunswick. The staff considers the commitments by the licensee to implement all three phases of the JOG program at Brunswick to be an acceptable response to GL 96-05 for valve age-related degradation.

In its letter dated October 27, 1998, the licensee indicated that it would begin implementing the JOG interim MOV static test program following completion of its refueling outage in early 1999. The licensee characterized this implementation date as an exception to the JOG program. However, the NRC staff considers this information to be a clarification of the licensee's schedule for implementing the JOG program. The staff considers this schedule to be acceptable.

In its letter dated March 17, 1997, the licensee stated that it had ranked MOVs at Brunswick according to their safety significance using the guidance provided in BWROG Topical Report 32264. The conditions and limitations discussed in the NRC SE dated February 27, 1996, on the BWROG methodology for ranking MOVs by their safety significance apply to the JOG program at Brunswick. The NRC staff notes that the BWROG also provided an example list of risk-significant MOVs for consideration by each licensee in applying the owners group methodology. The staff considers the licensee's approach to risk-ranking MOVs at Brunswick 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. The 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 the 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 NRC SE dated October 30, 1997, the NRC staff specified 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 NRC 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

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 December 20, 1999, the licensee states that the MOV program at Brunswick requires performance of periodic MOV static diagnostic testing and preventive maintenance, and application of allowances to account for actuator degradation mechanisms, to address potential degradation of thrust and torque delivered by MOV motor actuators. For example, the licensee reported that it would perform periodic static diagnostic testing of MOVs to confirm MOV capability and proper control switch settings and to detect potential degradation in actuator output. The licensee will also perform preventive maintenance activities, such as periodic stem lubrication, periodic actuator gear case grease inspection, and actuator refurbishment, as required, to provide assurance of proper actuator performance. Further, the licensee will apply appropriate margins to account for actuator degradation mechanisms, such as stem lubricant degradation and spring pack relaxation. The licensee also noted that it will monitor stem friction coefficient and rate of loading under static and dynamic conditions, and make necessary program adjustments to ensure that MOVs remain capable of performing their design-basis functions.

In Technical Update 98-01 and its Supplement 1, Limatorque Corporation provided updated guidance for predicting the torque output of its ac-powered motor actuators. In its letter dated December 20, 1999, the licensee stated that it had evaluated the impact of this information on the capability of ac-powered MOVs within its MOV program. The licensee reported that no MOV operability issues were identified. In its letter dated July 17, 1998, forwarding Technical Update 98-01, Limatorque indicates that a future technical update will be issued to address the application of dc-powered MOVs. In its letter dated December 20, 1999, the licensee stated that it had evaluated the dc-powered MOVs at Brunswick for degraded voltage and differential pressure conditions. The licensee did not identify any operability issues from its evaluation of dc-powered MOVs. The licensee stated that it would continue to review emergent industry issues concerning dc-powered MOVs. In particular, the licensee is participating in the BWROG project to develop an updated methodology for evaluating dc-powered MOV capability.

Any MOV operability concerns that might be identified in the future will be processed 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 Brunswick 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 Brunswick to verify that the implementation of the MOV periodic verification program is in

accordance with the licensee's commitments; this NRC SE; the NRC SE dated October 30, 1997, on the JOG Program on MOV Periodic Verification; and the NRC SE dated February 27, 1996, on the BWROG methodology for ranking MOVs by their safety significance.

Principal Contributor: T. Scarbrough, NRR

Date: May 8, 2000

Mr. J. S. Keenan
Carolina Power & Light Company

Brunswick Steam Electric Plant
Units 1 and 2

cc:

Mr. William D. Johnson
Vice President and Corporate Secretary
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Ms. Margaret A. Force
Assistant Attorney General
State of North Carolina
Post Office Box 629
Raleigh, North Carolina 27602

Mr. William M. Sue, Chairman
Brunswick County Board of Commissioners
Post Office Box 249
Bolivia, North Carolina 28422

Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
Post Office Box 29520
Raleigh, North Carolina 27626-0520

Resident Inspector
U.S. Nuclear Regulatory Commission
8470 River Road
Southport, North Carolina 28461

Mr. J. J. Lyash
Director - Site Operations
Carolina Power & Light Company
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

Mr. John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW.
Washington, DC 20037-1128

Mr. Norman R. Holden, Mayor
City of Southport
201 East Moore Street
Southport, North Carolina 28461

Mr. Mel Fry, Director
Division of Radiation Protection
N.C. Department of Environment
and Natural Resources
3825 Barrett Dr.
Raleigh, North Carolina 27609-7721

Mr. Dan E. Summers
Emergency Management Coordinator
New Hanover County Department of
Emergency Management
Post Office Box 1525
Wilmington, North Carolina 28402

Mr. C. J. Gannon
Plant Manager
Carolina Power & Light Company
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

Mr. Terry C. Morton
Manager
Performance Evaluation and
Regulatory Affairs CPB 7
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602-1551

Public Service Commission
State of South Carolina
Post Office Drawer 11649
Columbia, South Carolina 29211

Mr. W. J. Dorman
Manager - Regulatory Affairs
Carolina Power & Light Company
Post Office Box 10429
Southport, NC 28461