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HL-869
0002

December 28, 1989

U.S. Nuclear Regulatory Commission
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PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
RESPONSE TO GENERIC LETTER 89-10
MOTOR-OPERATED VALVE TESTING AND SURVEILLANCE

Gentlemen:

On June 28, 1989, the NRC issued Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve (MOV) Testing and Surveillance." The GL extended the recommendations outlined in NRC Bulletin 85-03 and its supplement to all safety-related and "position-changeable" MOVs. The Reporting Requirements (Item 1) requested that each licensee advise the NRC whether the recommendations and schedule contained in the GL would be met. The letter further requests that, for any recommendation which could not be met, the licensee should present technical justification along with alternative actions and/or schedules. The enclosure to this letter provides the requested information.

Georgia Power Company (GPC) concurs with the need to increase the overall functional reliability associated with MOVs, and will extend its program for testing, inspection and maintenance of safety-related MOVs above that currently required by ASME Section XI. However, GPC has concerns regarding two major issues associated with MOV testing and GL 89-10. The two major issues are:

1. Requiring utilities to consider inadvertent mispositioning of MOVs, including those valves in safety-related systems which do not have an active safety function, and
2. Requiring utilities to test MOVs at maximum differential pressure.

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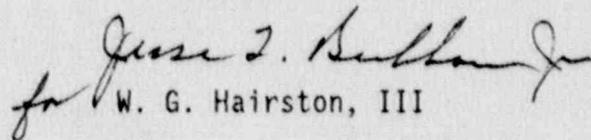
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Item (1) clearly represents a backfit without supporting analysis justifying this new NRC position. Consequently we are hesitant to commit to this requirement until its impact has been determined for Plant Hatch. The issue of differential pressure (dP) testing and valve performance at full dP conditions is being evaluated by industry and the NRC. As such, we will perform limited dP testing and focus on the more defined areas used to assure valve functionality such as design reviews, static (zero) dP diagnostic testing, and upgraded maintenance.

Georgia Power Company understands that the Nuclear Management and Resources Council (NUMARC) is planning to meet with the Staff to discuss industry concerns associated with GL 89-10. In the past, guidance from NUMARC has been used to help formulate programs which are acceptable to the NRC. Unfortunately, because of the complex issues surrounding the GL, clear guidance on an acceptable program was not available prior to this submittal date. The enclosure provides the requested information; however, additional communications with the Staff will be required.

Our program, which was begun under NRC Bulletin 85-03, concentrates on ensuring the actuator/valve units are as electrically and mechanically sound as is reasonably achievable. At this time, it is our intent to complete the design basis review and static (zero) differential pressure testing, in addition to some differential pressure testing, within five years or three refueling outages, whichever is later. We hope the enclosed information is helpful in your review. Please contact this office if you have questions.

Sincerely,


for W. G. Hairston, III

GKM/eb

Enclosure

c: Georgia Power Company
Mr. H. C. Nix, General Manager - Nuclear Plant
Mr. J. D. Heidt, Manager Engineering and Licensing - Hatch
GO-NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. P. Crocker, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebnetter, Regional Administrator
Mr. J. E. Menning, Senior Resident Inspector - Hatch

ENCLOSURE

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Introduction

In response to NRC Bulletin 85-03 and its supplement, Georgia Power Company (GPC) developed and implemented a comprehensive program for testing MOVs in the high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) systems. The program was based on a thorough design basis review, static pressure testing, and analytically determined thrust/torque requirements at full flow and pressure. Only limited differential pressure (dP) testing was performed.

We plan to extend the program to include additional safety-related MOVs, and will include more dP testing. Also, GPC intends to participate in the BWROG committee on MOV testing, as was done in response to Bulletin 85-03. Committee participation resulted in a consistent BWR design basis review for the HPCI and RCIC systems, and the Staff was able to review and approve the methodology.

Georgia Power Company believes an aggressive predictive/preventive maintenance program is the key element in ensuring that MOV's will operate on demand. Meticulous initial set-up utilizing diagnostic equipment followed by regularly scheduled preventive maintenance will eliminate the vast majority of problems which have been experienced throughout the industry involving MOV's. The Hatch program is based on this concept and has been very successful to date.

Recommended Actions

- A. A design basis review will be performed for each MOV covered by Generic Letter 89-10. The approach will be similar to that used in Bulletin 85-03, and we are planning to participate in the BWROG Committee which has been formed to address GL 89-10. The design basis review will include as a minimum the following.
1. Identification of all safety-related and position-changeable MOV's covered by the generic letter.
 2. Determination of the maximum differential pressure (dP) for each MOV.

ENCLOSURE (Continued)

RESPONSE TO GENERIC LETTER 89-10
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3. Calculation of the minimum required opening and closing thrust and/or torque values for each MOV.
4. Evaluation of operator capability for each MOV to determine the maximum allowable thrust and/or torque including consideration for degraded voltage operation.

The generic letter states that any MOV in a safety-related system that is not blocked from inadvertent operation must be capable of recovering from an inadvertent mispositioning. This is clearly beyond the existing design basis for the plant. Safety-related MOV's may be required to operate against dP following mispositioning. Non-safety MOV's, which are not designed to perform an active safety function (and which may not be included in the IST program), could also be undersized to operate against higher dPs than originally designed. This new requirement could result in the valves, which are adequately sized to perform their safety function, being undersized when considering mispositioning.

The implications of requiring position-changeable MOV's to be capable of recovering from an inadvertent mispositioning are being reviewed. Determining maximum dPs associated with an operator error scenario will be complex and time consuming. For valves which are required to operate against a higher dP when recovering from mispositioning than when performing their design basis functions, the potential exists that operators may be undersized. GPC will evaluate the impact of requiring MOV's to recover from inadvertent mispositioning and formulate a position with regard to this aspect of the generic letter as additional data becomes available. We also understand this is one of the topics which will be discussed with NUMARC.

- B. A program will be established and will be similar to the existing program established at Plant Hatch to comply with the requirements of NRC Bulletin 85-03 established procedures for setting torque, torque bypass, and position limit switches. These procedures, in combination with the minimum required thrust values calculated in the design basis review, will be utilized in setting up each MOV. The thermal overloads on most safety-related MOV's at Hatch are jumpered during operation. For valves with thermal overloads not jumpered, an engineering review will be performed.

ENCLOSURE (Continued)

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- C. Motor-operated valves covered by the generic letter will be set up statically utilizing motor-operated valve test equipment. All switches will be set based upon procedures established in item B. with sufficient margins to ensure operability at maximum differential pressure. We intend to perform selected dP testing to the extent practical and as further discussed under item F. An explanation will be documented in cases where dP testing cannot practicably be performed.
- D. Plant procedures were developed and/or revised to ensure that correct switch settings are determined and maintained to comply with the requirements of NRC Bulletin 85-03. These procedures cover diagnostic testing as well as electrical and mechanical maintenance. Maintenance activities involving MOV's covered by the generic letter will be controlled to ensure that Maintenance Engineering reviews work performed and evaluates the need for testing to verify switch settings. Procedures will be revised as necessary based on the results of activities performed in association with GL 89-10.
- E. As stated in item A, a design basis review will be performed for each MOV covered by the generic letter. This review will include an evaluation of operator capability at degraded voltage as well as re-verification of the adequacy of the MOV's power supply and cables.

Item e. of the generic letter states that "no change to the existing design basis is intended and none should be inferred". This appears to conflict with the statement "When determining the maximum dP or flow for position-changeable MOV's, the fact that the MOV must be able to recover from mispositioning should be considered". As stated in response to item A., the impact of requiring MOV's to recover from inadvertent mispositioning will be evaluated.

- F. Explanations and descriptions of actual test methods will be retained for each MOV. As stated in response to Recommendation A., all MOV's covered by the generic letter will be set up statically based on calculated values. The calculations will consider degraded voltage to ensure that the switch settings selected are adequate to ensure operability under degraded voltage conditions. No degraded voltage testing is planned at this time. Georgia Power Company will perform MOV testing at dP conditions to the extent practical. In many cases, this dP will be less than the maximum dP determined from item A. The following paragraphs discuss the issues surrounding dP testing and highlight the fact that the issue is complex and by no means resolved technically.

ENCLOSURE (Continued)

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The generic letter states "it is not clear that tests of an MOV at low or moderate pressure differentials can be directly extrapolated to determine correct switch settings at design-basis conditions using any type of diagnostic equipment". This statement implies that each valve should be tested at maximum dP which is neither possible nor practical. The letter also states, "demonstrating operability in-situ at design-basis conditions is not practical for some MOV's". The generic letter concedes it is not possible to test all valves at maximum dP but does not provide any guidance as to what would be an acceptable alternative.

The NRC workshops which were held to review the generic letter have raised additional questions relative to dP testing and acceptable alternatives. The Idaho National Engineering Laboratory (INEL) testing was discussed and the results of this testing seem to have caused the NRC to take a very conservative position with regard to demonstrating valve operability.

Several issues need to be considered relative to the INEL testing. First, the testing was restricted to two valves operating under simulated pipe break isolation conditions. Data based on test results involving two valves operating at these extreme conditions should not be construed as being representative of the typical MOV. Second, the testing and subsequent data evaluation took many months to perform under essentially ideal conditions and did not resolve the issue. For an individual utility to undertake a research and development program of sufficient magnitude to address all of the outstanding questions relative to valve thrust requirements would require a tremendous commitment of both time and money. An operating nuclear power plant is not the proper environment for conducting a program of this type.

EPRI is currently conducting a program to develop improved methodology to calculate and predict valve thrust requirements. As many as twenty parameters have been identified which may have some effect on valve/actuator performance. Until the industry has a clear understanding of which parameters are significant and how they affect valve performance, an extensive program of in-situ dynamic testing would be premature. It is virtually impossible to simulate all design basis conditions when performing in-situ testing and without an approved methodology for extrapolating test conditions to design basis conditions the results are of limited value.

ENCLOSURE (Continued)

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GPC will continue to track and participate in industry efforts addressing MOV issues. As additional data becomes available, it will be factored into the Plant Hatch MOV program to ensure that the program remains current and addresses the relevant issues.

- G. This item requires no response.
- H. Each MOV failure and corrective action taken will be documented and analyzed. Documentation will be retained and failures will be reported in accordance with existing requirements. Motor-operated valve performance data will be periodically evaluated to establish trends of MOV operation.