C. K. McCoy
Vice President
Vogtle Project

Southern Nuclear
Operating Company, Inc.
40 Inverness Center Parkway
P.O. Box 1295
Birmingham, Alabama 35201

Tel 205.992.7122
Fax 205.992.0403

SOUTHERN COMPANY
Energy to Serve Your World℠

May 5, 1997

LCV-0136-M

Docket Nos.: 50-424
50-425

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

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
GENERIC LETTER 89-10
CLOSE-OUT INSPECTION

The NRC performed an inspection of the Vogtle Electric Generating Plant (VEGP) Generic Letter 89-10 (GL 89-10) program March 24-27, 1997. As a result of this inspection, the NRC indicated that VEGP had implemented a program in accordance with the recommendations contained in GL 89-10. However, certain issues were identified which the NRC felt needed additional attention in conjunction with the close-out of this program. The attached enclosure documents those issues and their proposed resolution, as discussed with the NRC inspectors performing the inspection.

The actions identified in the enclosure, with the exception of modifications to the 1/2HV-9380A/B valves, will be completed in 1997. Modifications to the 1/2HV-9380A/B valves will be implemented in 2R6 and 1R8, which are scheduled for 1998 and 1999, respectively. A report outlining the status of each of the issues identified in the enclosure will be submitted to the NRC by December 31, 1997.

In addition, the resolution of the issues identified in the enclosure will in some cases supersede information contained in the VEGP GL 89-10 Close-Out Report, which was transmitted in letter LCV-0136-K dated January 31, 1996.

Should you require any additional information regarding this response, please contact my office.

Sincerely,

C. K. McCoy

CKM/HET/het

Enclosure

xc: Southern Nuclear Operating Company, Inc.
Mr. J. B. Beasley, Jr.
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. L L. Wheeler, Licensing Project Manager, NRR
Mr. C. R. Ogle, Senior Resident Inspector, Vogtle

Enclosure

Generic Letter 89-10
Close-Out Inspection Issues

Issue No. 1

Differential pressure testing was performed to support the use of a hybrid Fisher/EPRI methodology to predict Fisher butterfly valve torque requirements. The differential pressure testing indicated that the methodology provided a reasonable prediction of torque requirements, however, the calculations did not bound the test data in all cases. There is a concern, due to the fact that this methodology does not include a substantial degree of margin, that the methodology may be utilized in a non-conservative manner in the future.

Resolution

The VEGP Thrust/Torque Calculation, X4C1000U02, will be revised to include a note which references the differential pressure test results, and the basis for justifying the use of the Fisher/EPRI methodology. This will ensure that the methodology will not be utilized in a non-conservative manner in the future, and that any limitations associated with the use of this methodology are clearly identified and documented.

Issue No. 2

The VEGP Generic Letter 89-10 program includes a total of 70 Fisher butterfly valves which have been divided into six groups of essentially identical valves. Differential pressure testing was performed on a total of four valves in the eight inch valve group to justify the use of the analytical methodology utilized to determine the torque requirements. There is a concern that the methodology has not been adequately justified for use on the larger valve sizes.

Resolution

The NSCW pump discharge valves are 18 inch Fisher butterfly valves which operate against a design-basis differential pressure of 173 psid. These valves are operated under essentially design conditions each time an NSCW pump is started during normal plant operation. In order to provide additional justification for the use of the Fisher/EPRI methodology, two NSCW pump discharge valves will be instrumented to monitor stem torque when the valves stroke open during a normal NSCW pump start. Pressure taps are not available on both the upstream and downstream side of the NSCW pump discharge valves, therefore, the differential pressure will not be recorded during the tests. However, the system will be reviewed to ensure that the test configuration is representative of the conditions which were postulated in determining the design-basis differential pressure for

these valves. In addition, the test pressures will be monitored utilizing local instrumentation, to the extent possible, to assess the actual system conditions and provide a basis for evaluating the test data.

Issue No. 3

The thrust calculations for the Anchor-Darling gate valves in groups AD-1, AD-2 and AD-4 and for the Velan globe valves in groups V-1, V-2 and V-3 were performed utilizing the EPRI Performance Prediction Program (PPP) methodology. Subsequent to the use of this methodology at VEGP, the NRC issued a Safety Evaluation Report (SER) on March 15, 1996 documenting their review of Topical Report TR-103237 covering the EPRI PPP methodology. There is a concern that the SER has not been reviewed in sufficient detail to ensure that the Conditions/Limitations outlined in the document have been adequately addressed relative to the VEGP calculations.

Resolution

The SER covering the EPRI PPP methodology will be reviewed in detail for applicability to the calculations performed relati to the Anchor-Darling and Velan valves. A summary of this review will be included in the section of the VEGP Thrust/Torque Calculation, X4C1000U02, which pertains to these valves.

Issue No. 4

The thrust calculations for the Anchor-Darling gate valves in group AD-3 were performed utilizing the Industry Standard equation with a 0.5 valve factor, since the EPRI methodology does not apply to valves operating in air systems. There is a concern that the Industry Standard equation with a 0.5 valve factor is not adequately justified for this valve group.

Resolution

To provide additional assurance that the analytical methodology utilized to predict thrust requirements for these valves provides a conservative result, the operators on valves 1/2HV-9380A/B will be modified to increase the thrust output at degraded voltage. The valves will be re-evaluated utilizing the NMAC equation with a 0.7 friction coefficient to provide a more conservative prediction of thrust requirements.

Issue No. 5

Fisher globe valves 1/2HV-3548 have as-left closing margins of less than 5% based on the current torque switch settings and calculated required closing thrust. There is no differential pressure test data available to support the analytical methodology utilized for the valves in this group, therefore, there is a concern regarding the low as-left margins for these valves.

Resolution

Valve 2HV-3548 has been repacked with a revised packing configuration which reduced the actual packing loads to a value substantially lower than that assumed in the current thrust calculations. Valve 1HV-3548 will be repacked with the new packing configuration and tested to verify that the packing loads on this valve are also reduced to a similar level. The design packing load for this valve will then be revised from 1000 lbs to 500 lbs, the value originally utilized by Fisher. This will substantially increase the as-left margins for these valves and provide additional assurance that the valves will be capable of performing their design-basis function.

Issue No. 6

A total of three Velan globe valves have as-left closing margins of less than 5% based on the current torque switch settings and calculated required closing thrust. The closing thrusts for these valves were determined utilizing the EPRI PPP methodology and are supported by extensive in-situ differential pressure testing. However, there is a general concern that maintaining margins of less than five percent above design is not a good long-term practice.

Resolution

Torque switch settings at VEGP are adjusted to account for uncertainties including torque switch repeatability, test equipment accuracy and Load Sensitive Behavior. In addition to these uncertainties, an additional 5% will be included as a bias in the adjustment to establish a target margin for all torque switch controlled rising stem valves. The additional 5% will be considered a "good practice" and will not be considered relative to valve operability. In addition, the 5% margin may be reduced based on a valve specific evaluation performed by the site MOV engineer or his designated alternate.

Issue No. 7

Differential pressure tests were performed on Westinghouse gate valves in groups W-2A, W-2B and W-8 to justify the analytical methodology utilized to determine the thrust requirements for these valves. However, in certain cases the calculations do not bound the differential pressure test results. There is a concern that the analytical methodology has not been adequately justified for these valve groups.

Resolution

The differential pressure test results for these valves will be reviewed, and the analytical methodology utilized to determine the thrust requirements for these valves will be revised to bound all credible test data

Issue No. 8

Differential pressure tests were not performed on Westinghouse gate valves in groups W-9, W-11 and W-12. There is a concern that the analytical methodology has not been adequately justified for these valve groups.

Resolution

The justification for the analytical methodology utilized to predict thrust requirements for these valve groups will be reviewed and strengthened as required. An attempt will be made to identify industry differential pressure test data on similar valves to support the use of the existing methodology. In the event that industry data is not available, the valves will be re-evaluated utilizing a more conservative methodology, such as the EPRI PPP methodology.

Issue No. 9

The Fisher, Velan and Westinghouse rising stem valves utilize a stem friction coefficient of 0.15 in the opening direction and in the closing direction on limit switch controlled valves. There is a concern regarding the justification of the 0.15 stem friction coefficient for these valve functions.

Resolution

A substantial amount of data was collected at VEGP to evaluate stem friction coefficients in the closing direction. Unfortunately, the instrumentation utilized to measure closing torque did not provide meaningful data in the opening direction. A stem friction coefficient of 0.15, in combination with an adjustment for load sensitive behavior, was justified for the rising stem valves equipped with standard ACME thread stems which utilize torque switch control in the closing direction. A similar adjustment is not included for valve functions which are controlled by a limit switch. To ensure that valves equipped with standard ACME thread stems utilize a conservative stem friction coefficient, when evaluating limit switch controlled valve functions, a stem friction coefficient of 0.18 will be utilized in the opening direction and in the closing direction for limit switch controlled valves. The 0.18 stem friction coefficient is based on a statistical evaluation of the VEGP test data and represents a 95% confidence value.