



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE NUCLEAR REACTOR REGULATION  
CONCERNING A TECHNICAL SPECIFICATION CHANGE FOR THE  
CONTAINMENT PURGE SUPPLY AND EXHAUST ISOLATION VALVES  
GEORGIA POWER COMPANY, ET AL.  
VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-424 AND 50-425

1.0 INTRODUCTION

By letter dated November 7, 1991, as supplemented June 17, 1992, Georgia Power Company (GPC) requested to amend the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications. The proposed amendments would clarify the action statements and surveillance requirements for the containment purge supply and exhaust isolation valves, in light of NRC Information Notice No. 88-73, "Direction-Dependent Leak Characteristics of Containment Purge Valves."

2.0 BACKGROUND

Information Notice No. 88-73 addressed an unexpected direction-dependent leakage characteristic of certain butterfly valves equipped with a tapered seat. Pressure from one direction tended to unseat the resilient seals (gaskets), whereas pressure from the opposite direction tended to seal the gaskets against the tapered valve seats.

Section III.C, "Type C tests," of Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," to 10 CFR Part 50 states that for containment isolation valve local leak rate testing, "pressure shall be applied in the same direction as that when the valve would be required to perform its safety function, unless it can be determined that the results from the tests for a pressure applied in a different direction will provide equivalent or more conservative results." The isolation valves being considered under this request are butterfly valves equipped with a tapered seat. It is the staff's position that testing these kinds of valves in the direction opposite to the one required to perform their safety function is inadequate to meet the requirements for containment isolation valve local leak rate testing.

3.0 EVALUATION

The preferred method of performing the quarterly testing at VEGP involves pressurizing the space between the inboard and outboard purge supply and exhaust isolation valves (hereafter referred to as a "between valve" test). This results in the inboard valves being tested in the direction opposite that

which the valves would experience under accident conditions. As a result of Information Notice No. 88-73, it is uncertain that the preferred method of testing at VEGP can be considered to provide equivalent or more conservative results with respect to the inboard containment purge supply and exhaust isolation valves. Presently, forward direction tests are performed at quarterly intervals as required by existing surveillance requirement 4.6.1.7.2; the necessity of making a containment entry each time the test must be performed represents a hardship on the licensee, especially from the standpoint of maintaining personnel exposure as low as reasonably achievable.

The licensee stated in their request that the purpose of these quarterly surveillance tests is to identify excessive degradation of the resilient seals. The following quarterly test requirement was proposed to provide indication of seal degradation:

First, the quarterly "between valve" test results will be trended. If the current leakage exceeds the previous leakage by 10 percent of 0.06 La, the "between valve" test frequency will be increased to at least once per month.

Second, if the current "between valve" test results exceed 35 percent of 0.06 La, then a Type C test must be performed within 24 hours. The limit of 35 percent of 0.06 La was chosen by the licensee based on a comparison of historical leak rate test results for these valves.

#### 4.0 CONCLUSION

The staff disagrees with the licensee's contention that the purpose of the quarterly surveillance tests is to identify excessive degradation of the resilient seals. The staff believes that the purpose of the quarterly surveillance tests is to verify the operability of the valve at a frequency that would detect incipient gross failure and allow the licensee to take action to prevent gross failure. The licensee has failed to demonstrate that the proposed testing of the valves in the reverse direction will provide equivalent or more conservative results as required by Section III.C of Appendix J. As identified in Information Notice No. 88-73, the problem of reverse flow testing is that the valve may demonstrate adequate leak tightness in the reverse direction but fail in the direction required to perform its safety function. The licensee's proposal to verify leak tightness in the reverse direction does not adequately address the concerns identified in Information Notice No. 88-73. Therefore, the staff recommends that the licensee remain with its present technical specifications and continue to test the containment purge supply and exhaust isolation valves in the forward direction.

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Date: November 10, 1993