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Georgia Power
the southern electric system

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ELV-05258
003084

Docket Nos. 50-424
50-425

TAC Nos. M82724
M82725

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

VOGTLE ELECTRIC GENERATING PLANT
ADDITIONAL INFORMATION TO SUPPORT POWER UPRATING

Gentlemen:

In letters ELV-03375 and ELV-04004, Georgia Power Company (GPC) proposed changes to the Vogtle Electric Generating Plant (VEGP) Units 1 and 2 Technical Specifications. The changes were to revise the definition of rated thermal power from 3411 MWt to 3565 MWt and revise the overtemperature delta temperature (OTDT) and overpower delta temperature (OPDT) setpoints.

Georgia Power Company plans to implement the increase in rated thermal power as well as the OTDT and OPDT setpoint changes during the Unit 1 refueling outage this spring. Following the completion of the outage, GPC plans to implement the same changes on Unit 2 during May of this year. Consequently, GPC requests that the Technical Specification changes become applicable immediately upon issuance with an allowance of 60 days for implementation on both units.

In addition, the following information was requested on February 18, 1993, to support the uprate amendment:

1. (Section 3.5.1.2) Please provide method of analysis regarding compliance with their Code of record, and the Code used for reanalysis including the edition.

   Response

   The design transients were compared to the original design transients to determine which transients were more severe than their design basis counterparts by comparing the rates, magnitudes, and duration of the transient temperature variations. Based on this review, a determination was made as to which revised design transient would affect the stress evaluation. The additional stress and fatigue usage associated with the transient changes was then calculated for various locations in the reactor vessel. The code for the reanalysis was the same as the current basis which is the 1971 Edition of Section III of the ASME Boiler and Pressure Vessel Code with the Addenda through the Summer of 1972.

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2. (Section 3.5.1.1) The results for power rerating show that Steam Generator manway bolts have a cumulative usage factor of 1.0 for 14.5 years while these bolts were qualified for 20 year replacement. Please discuss the basis how these manway bolts were acceptable. The steam volumetric flow rate increases by 30% for the uprated condition with T-hot reduction. Please provide calculated cumulative usage factor and stress for the steam generator tubesheet as well as load combination considered in the analysis.

Response

The original secondary manway bolt analysis calculated a (ASME Code) fatigue usage of 1.0 for 20 years of operation. The decreased secondary pressure resulted in increased fatigue (cyclic) stresses on the secondary manway bolts. Thus, the increased fatigue stresses decreased the time for the bolts to accumulate a usage of 1.0 from 20 to 14.5 years. The ASME code limit is that the fatigue usage be less than or equal to 1.0. The manway bolts meet this criteria for 14.5 years of uprated operation. Therefore, these bolts will now be replaced after 14.5 years of service instead of 20 years of service.

The calculated usage factor for the steam generator tube sheet was 0.951 for the low temperature rerate case. This was an effective increase in the usage factor due to the decrease in secondary pressure and increased delta-P across the tubesheet. The limiting stress occurred at the centerline of the tubesheet and was found to be 2% greater than the code allowable limit of 90,000 psi. Therefore, a fatigue evaluation based on simplified elastic plastic analysis was performed to satisfy the code criteria. The load combination considered in the tubesheet analysis for the uprated power condition was the same as that in the current analysis of record.

Sincerely,

C. K. McCoy

CKM/JAB/gmb

xc: Georgia Power Company
Mr. W. B. Shipman
Mr. M. Sheibani
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U. S. Nuclear Regulatory Commission, Washington, D. C.
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Mr. S. D. Ebneter, Regional Administrator
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

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