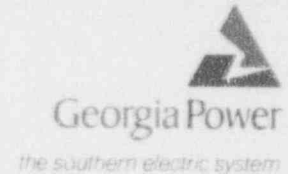


C. K. McCoy  
Vice President, Nuclear  
Vogtle Project



April 8, 1993

ELV-03614  
001456

Docket Nos. 50-424  
50-425

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

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT  
TECHNICAL SPECIFICATIONS CHANGE  
REVISION TO PEAK CONTAINMENT PRESSURE

In accordance with the provisions of 10 CFR 50.90 and 10 CFR 50.59, Georgia Power Company (GPC) hereby proposes to amend the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications, Appendix A to Operating Licenses NPF-68 and NPF-81.

The proposed revision changes the value of the calculated peak containment pressure related to design basis accidents from 45 psig to 37 psig. This value is designated as  $P_a$  in the Technical Specifications. The peak containment pressure results from the design basis loss of coolant accident (LOCA). The design basis LOCA and the design basis main steam line break were recalculated as part of the power rerating program. The reduction in the calculated value of  $P_a$  was primarily a result of the use of a more accurate accounting of the available heat sinks in the containment, credit for the minimum number of containment coolers required to be operable by the Technical Specifications, and credit for steam/water mixing in the LOCA analysis. The description of these analyses, including the results, was submitted to the NRC with GPC letters ELV-03375, dated February 28, 1992, and ELV-05217 dated February 12, 1993.

The reduction in the value of  $P_a$  does not require any physical modifications to the plant and is consistent with the requirements of 10 CFR 50 Appendix J. It will allow a reduction in the required test pressure which represents a significant savings associated with leak testing. Georgia Power Company requests that this revision to the Technical Specifications be approved by August 31, 1993, which will allow for the necessary preparation of procedures and performance of preoutage local leak rate tests prior to the next scheduled integrated leak rate test.

Enclosure 1 describes the proposed changes and the reasons for the requested changes. Enclosure 2 provides an evaluation of the proposed changes in accordance with 10 CFR 50.92 showing that the changes do not result in any significant hazards considerations. Enclosure 3 provides instructions for incorporation of the changes into the Technical Specifications and a markup of the affected pages.

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In accordance with 10 CFR 50.91, the designated state official will be sent a copy of this letter and all enclosures.

Mr. C. K. McCoy states that he is a vice president of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company and that, to the best of his knowledge and belief, the facts set forth in this letter and enclosures are true.

GEORGIA POWER COMPANY

By: C.K. McCoy

Sworn to and subscribed before me this 8<sup>th</sup> day of April, 1993.

Mary N. Bentley  
Notary Public

MY COMMISSION EXPIRES MAY 6, 1995

CKM/HWM/gmb

Enclosures:

1. Basis for Proposed Change
2. 10 CFR 50.92 Evaluation
3. Instructions for Incorporation and Revised Pages

c(w): Georgia Power Company  
Mr. W. B. Shipman  
Mr. M. Sheibani  
NORMS

U. S. Nuclear Regulatory Commission  
Mr. S. D. Ebner, Regional Administrator  
Mr. D. S. Hood, Licensing Project Manager, NRR  
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

State of Georgia  
Mr. J. D. Tanner, Commissioner, Department of Natural Resources

## ENCLOSURE 1

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATIONS REVISION REVISION TO PEAK CONTAINMENT PRESSURE

#### BASIS FOR PROPOSED CHANGE

##### Proposed Change

The proposed change will revise the value of  $P_a$  from 45 psig to 37 psig in Specifications 4.6.1.1.c, 3.6.1.2.a, 3.6.1.2.b, 4.6.1.2.a, 4.6.1.2.d, 3.6.1.3.b, 4.6.1.3.a, and 4.6.1.3.b. The value to be placed in the Technical Specification has been rounded up from the calculated value of 36.5 psig which is already recorded in the bases section.

##### Basis

The original analysis of the peak containment pressure was conducted during the design and construction of Vogtle Electric Generating Plant (VEGP) Unit 1. The analysis used a conservative estimation of the available heat sinks in the containment and only took credit for two of the eight containment coolers. These analyses evaluated the peak pressure resulting from a main steam line break or a loss of coolant accident (LOCA). The results indicated that the highest calculated pressure was 41.9 psig and was due to a main steam line break. These analyses were based on an initial containment pressure of 0.3 psig. The value used for  $P_a$  in the Technical Specifications was subsequently increased to 45 psig to allow for the possibility of a slightly higher initial containment pressure. This is the value that is currently used in the Technical Specifications.

During the power rerating program peak containment pressure at the rerated conditions was recalculated. These analyses used the same methods as the original analysis, but benefited from more accurate accounting of the heat sinks in the containment and an improved mass and energy evaluation model documented in WCAP-10325-P-A. The heat sinks used for the new analyses are tabulated in table 3.4.1-2 of enclosure 5 to letter ELV-03375. The new analyses also took credit for the operation of four of the eight containment coolers, since this is the number of coolers required to be operable by the Technical Specifications for each train of containment cooling and assumed that the initial containment pressure was 3.0 psig, per the current Technical Specification limit, instead of 0.3 psig as assumed for the original analyses. These analyses, including the results, are described in enclosure 5 to letter ELV-03375 dated February 28, 1993. Additional information describing these analyses was also transmitted to the NRC in letter ELV-05217 dated February 12, 1993.

The results showed that the peak containment pressure resulting from the design basis LOCA is 36.5 psig.

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT  
TECHNICAL SPECIFICATIONS REVISION  
REVISION TO PEAK CONTAINMENT PRESSURE

BASIS FOR PROPOSED CHANGE

For the design basis main steam line break containment response, the revised peak containment pressure calculated for the rerating is 32.7 psig, which is less than the originally calculated 41.9 psig. The results of the revised main steam line break peak containment pressure analysis were influenced by changes in analysis assumptions such as the number of operable fan coolers, a more accurate accounting of the heat sinks, main feedwater flow rates, auxiliary feedwater enthalpy, and the decay heat model. The cumulative effect of these changes was to reduce the peak calculated containment pressure resulting from a steam line break such that the LOCA results are now limiting.

This revision to  $P_a$  is consistent with the revised calculation of containment pressure which was submitted to the NRC with the power rerating license amendment request which was approved by the NRC.

The calculated value of peak containment pressure is defined as  $P_a$  in 10 CFR 50 Appendix J and is used as the basis for containment leak rate tests. The reduction in the value of  $P_a$  which is allowed by these revised calculations represents a significant savings associated with containment leak tests. Therefore, Georgia Power Company is requesting that the value of  $P_a$  in the Technical Specifications be revised to be consistent with the latest calculation of peak containment pressure. The calculated value of 36.54 psig has been rounded up to 37 psig for use in the Technical Specifications.

## ENCLOSURE 2

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATIONS REVISION REVISION TO PEAK CONTAINMENT PRESSURE

#### 10 CFR 50.92 EVALUATION

Pursuant to 10 CFR 50.92, each application for amendment to an operating license must be reviewed to determine if the proposed change involves a significant hazards consideration. The proposed Technical Specifications amendment for the reduction in peak pressure ( $P_a$ ) for containment leak testing has been reviewed and deemed not to involve significant hazards considerations. The basis of this determination is presented below.

#### Background

Reanalysis of the containment peak pressure response was performed as part of the Vogtle Electric Generating Plant rerating program. As a result, a revised maximum predicted containment pressure of 36.54 psig was calculated for the LOCA mass and energy release. Previously, the maximum containment pressure was calculated to be 41.9 psig resulting from a steam line break, which resulted in a  $P_a$  of 45 psig in Technical Specification 3.6.1.2 because 3 psig was added on to the calculated value to account for an initial containment pressure of up to 3 psig and the resulting value was rounded up to 45 psig. The revised analyses assumed an initial containment pressure of 3 psig, therefore, it is unnecessary to make a similar addition for the new calculation results. The value of  $P_a$  in the Technical Specifications specifies the pressure for containment leak testing. Reducing this value provides a significant benefit to the plant outage schedule. The purpose of this evaluation is to demonstrate that changing this value in the Technical Specifications does not involve significant hazards considerations. The calculated peak containment pressure is used for leak testing the containment, containment isolation valves, and containment penetrations, including the containment airlock, in accordance with 10 CFR 50 Appendix J.

#### Analysis

##### 1. LOCA Containment Integrity (Peak Pressure) Analysis

The following information is based on information previously submitted to the NRC in enclosure 5 to letter ELV-03375, dated February 28, 1992.

Analyses were completed to determine the pressure and temperature response for the containment atmosphere for the postulated double ended pump suction minimum and maximum safety injection break cases and the double ended hot leg break case. The results of these analyses provide important design requirements to ensure the integrity and operability of the primary containment structure and equipment necessary to mitigate the consequences of the postulated accidents.

The calculation of containment pressure and temperature transients was accomplished by use of the digital computer code, COCO.

## ENCLOSURE 2 (CONTINUED)

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATIONS REVISION REVISION TO PEAK CONTAINMENT PRESSURE

#### 10 CFR 50.92 EVALUATION

The COCO code has been used and found acceptable to calculate containment pressure transients for many dry containment plants. Transient phenomena within the reactor coolant system affect containment conditions by means of convective mass and energy transport through the pipe break. The results of the analysis show that the maximum calculated containment pressure for the double ended pump suction minimum and maximum safety injection cases is 34.6 psig for each case and occurs at approximately 17.6 seconds into each transient. The calculated containment pressure for the double ended hot leg break case is 36.54 psig, which occurs at 17.3 seconds.

The LOCA mass and energy release analysis was performed in accordance with the criteria shown in Standard Review Plan (SRP) section 6.2.1.3. In this analysis, the relevant requirements of General Design Criteria (GDC) 50 and 10 CFR Part 50, Appendix K have been met since the calculated pressure is less than the design pressure and because all available sources of energy have been included. The sources considered include: reactor power, decay heat, core stored energy, energy stored in the reactor vessel and internals, and stored energy in the secondary system.

The containment integrity peak pressure analysis has been performed in accordance with the criteria of SRP section 6.2.1.1.A for dry pressurized water reactor (PWR) containments. Conformance to GDCs 16, 38, and 50 was demonstrated by showing that the containment design pressure is not exceeded at any time in the transient. This analysis also demonstrates that the containment heat removal systems function to rapidly reduce the containment pressure and temperature in the event of a LOCA.

#### 2. Main Steam Line Break Containment Integrity (Peak Pressure) Analysis

The following information is based on information previously submitted to the NRC in enclosure 5 to letter ELV-03375, dated February 28, 1992.

The purpose of the containment integrity main steam line break (MSLB) analysis was to demonstrate the acceptability of the containment safety systems to mitigate the consequences of a hypothetical rupture of a main steam line pipe. The impact of steam line mass and energy releases on containment pressure was addressed to assure that the containment pressure remains below its design pressure of 52 psig at the rated 3579 Mwt power conditions.

The steam line mass and energy releases of the secondary rupture are established from the analysis discussed in section 3.1.5.1 of enclosure 5 to letter ELV-03375. The LOFTRAN computer code was used to generate the mass and energy released to the containment.

## ENCLOSURE 2 (CONTINUED)

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATIONS REVISION REVISION TO PEAK CONTAINMENT PRESSURE

#### 10 CFR 50.92 EVALUATION

The COCO computer code was used to generate the containment response. The containment model was identical to that used for the LOCA containment integrity (peak pressure) analysis.

A spectrum of power levels, break types, and break sizes was analyzed. All cases with respect to single failure criteria assumed a diesel failure. The limiting mass and energy release case with respect to peak calculated pressure was the 0.22-ft<sup>2</sup> double ended rupture without entrainment at 30-percent power. This case produced a peak containment pressure of 32.7 psig. Note that the LOCA peak pressure previously discussed bounds the peak containment pressure response to the main steam line break.

Based on the analysis performed, the containment safety systems are capable of mitigating the consequences of a hypothetical rupture of a main steam line without challenging the integrity of the containment building.

#### Results

Based on the information presented above, the following conclusions can be reached with respect to 10 CFR 50.92 for the changes to the pressure for containment leak testing.

1. The revision of pressure for containment leak testing does not involve a significant increase in the probability or consequences of an accident previously evaluated. Utilization of the revised pressure will not cause any design or analysis acceptance criteria to be exceeded because the containment will continue to be tested at a pressure greater than or equal to the highest pressure associated with any design basis accident. The structural and functional integrity of plant systems is unaffected. Furthermore, this change does not affect the initiators for any transient. Therefore, the probability of occurrence is not affected.

The change to the pressure for containment leak testing does not affect the integrity of the fission product barriers utilized for mitigation of radiological dose consequences as a result of an accident. In addition, the offsite mass releases used as input to the dose calculations are unchanged from those previously assumed. Therefore, the offsite dose predictions remain within the acceptance criteria for each of the transients affected. Since it has been determined that the transient results are unaffected by the change in pressure for containment leak testing it is concluded that the consequences of an accident previously evaluated are not increased.

## ENCLOSURE 2 (CONTINUED)

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATIONS REVISION REVISION TO PEAK CONTAINMENT PRESSURE

#### 10 CFR 50.92 EVALUATION

2. The change in pressure for containment leak testing does not create the possibility of a new or different kind of accident from any accident previously evaluated. The change in pressure does not affect accident initiation sequences. No new operating configuration is being imposed by the reduction in pressure that would create a new failure scenario. In addition, no new failure modes are being created for any plant equipment. Therefore, the types of accidents defined in the Final Safety Analysis Report (FSAR) continue to represent the credible spectrum of events to be analyzed which determine safe plant operation.
3. The margin of safety associated with the change in the pressure for containment leak testing has been demonstrated by the results of the accident analyses. The analyses confirm that the peak containment pressure calculated as a result of LOCA and steam line break does not challenge the containment design pressure of 52 psig. The relationship of the test pressure to the peak calculated pressure remains the same; therefore, the required margin of safety regulated for each affected safety analysis is maintained. Since the revised Technical Specification value continues to be less than the containment design pressure and greater than or equal to the peak calculated containment pressure, the change does not involve a significant reduction in a margin of safety.

#### Conclusion

Based upon the preceding analysis, it has been determined that the proposed change to the Technical Specifications to modify the pressure for containment leak testing does not involve a significant increase in the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in the margin of safety. Therefore, it is concluded that the proposed change meets the requirements of 10 CFR 50.92(c) and does not involve a significant hazards consideration.