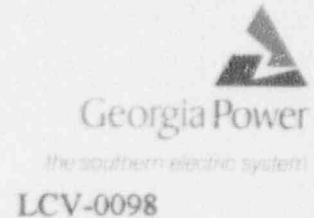


Georgia Power Company  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, Alabama 35201  
Telephone 205 877 7122

C. K. McCoy  
Vice President, Nuclear  
Vogtle Project

November 19, 1993



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 SPECIFICATION REVISIONS  
DC SOURCES

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.

Georgia Power Company is proposing two revisions to the Technical Specifications (TS) relating to DC sources. One proposed revision will change the surveillance requirements of paragraphs 4.8.2.1 e and f. In letter ELV-03923 dated October 29, 1992, GPC indicated the station batteries would be replaced based on the results of surveillance testing, maintenance inspections, or trending. In response to this letter, the NRC indicated that the surveillance requirements of TS 3/4.8.2.1 should be revised to reflect recommended maintenance and testing practices in draft IEEE Standard 450-1992, "Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations." The proposed revision incorporates maintenance and testing practices contained in the draft standard such that VEGP Technical Specifications will be in compliance with the conditions established by the NRC to allow the batteries to function for their expected lifetime of 20 years.

The second proposed change is to table 4.8-2, "Battery Surveillance Requirements." The allowable value for the float voltage for each connected cell is ">2.10 volts." Our review of IEEE 450-1980, 1987, the draft IEEE Standard 450-1992, and the new Standard Technical Specifications (NUREG-1431) indicated that the float voltage value for each connected cell should be ">2.07 volts." Therefore, we propose to change the value of float voltage allowed for each connected cell from ">2.10 volts" to ">2.07 volts."

9312010319 931119  
PDR ADDOCK 05000424  
P PDR

1001  
111

U. S. Nuclear Regulatory Commission  
LCV-0098  
Page 2

Enclosures 1A and 1B describe the proposed changes and the basis for the proposed changes.  
Enclosures 2A and 2B provide an evaluation of the proposed changes in accordance with 10 CFR 50.92 that demonstrates the changes do not result in a significant hazards consideration.  
Enclosure 3 provides a markup of the affected TS pages.

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

Sworn to and subscribe before me this 19<sup>th</sup> day of November 1993.

Mary N. Bentley  
Notary Public

COMMISSION EXPIRES MAY 6, 1995

CKM/PAH/gmb

Enclosures:

- 1A and 1B. Basis for Proposed Changes
- 2A and 2B. 10 CFR 50.92 Evaluation
- 3. Marked-Up TS Pages

c(w). Georgia Power Company  
Mr. J. B. Beasley, Jr.  
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 1A

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### BASIS FOR PROPOSED CHANGE

##### Proposed Change

The proposed change would modify surveillance requirements 4.8.2.1.e and f of the Vogtle Electric Generating Plant Unit 1 and Unit 2 Technical Specifications. These paragraphs currently read:

- "e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval this performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1.d.; and
- f. At least once per 18 months, during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating."

The proposed change would revise surveillance requirement 4.8.2.1.e as follows:

- e. By verifying during shutdown, that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test, in accordance with table 4.8-3.

Paragraph f. would be deleted, and in its place would be new table 4.8-3. New table 4.8-3 establishes a schedule for performance discharge tests based on the remaining service life of the battery and whether or not degradation has been detected. (Degradation would be defined as a decrease in battery capacity of more than 10 percent of capacity from its previous performance test, or the battery capacity is less than 90 percent of the manufacturer's rating. This is different than the current definition of degradation in that the current definition specifies a decrease of more than 10 percent from **its average on previous performance tests**.) Under new table 4.8-3, if the life of the battery is less than 85 percent of its expected service life (i. e., the battery is less than or equal to 17 years old based on a 20-year service life) and no degradation has been detected, performance discharge tests would be performed at 60-month intervals. If degradation has been detected, the next performance discharge test would have to be performed within the following 12 months, unless the battery capacity can be restored by cell replacement to at least 90 percent of the manufacturer's rating with no degradation. If capacity can be restored, performance discharge testing can be resumed at 60-month intervals. Replacement cells must be tested to demonstrate a minimum capacity of 100 percent of the manufacturer's rating prior to installation.

## ENCLOSURE 1A (CONTINUED)

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### BASIS FOR PROPOSED CHANGE

If the life of the battery is greater than 85 percent of its expected service life (i. e., the battery is more than 17 years old based on a 20-year expected service life) and no degradation is detected, performance discharge tests must be performed at 24-month intervals. If degradation is detected, the test schedule must be accelerated to 12-month intervals unless battery capacity can be restored by cell replacement to a minimum of 100 percent of the manufacturer's rating. If capacity can be restored, the schedule can resume at 24-month intervals. In addition, a note has been added that would allow a modified performance discharge test to be performed in lieu of the battery service test required by Specification 4.8.2.1d. The modified performance discharge test would consist of a simulated load duty cycle made up of two rates - a one minute rate corresponding to the largest load of the duty cycle, followed by the test rate employed for the performance discharge test. This note is similar in principal to the existing note that allows the performance discharge test to be substituted for the service test at 60-month intervals. However, for a battery that has reached 85 percent of its expected service life, the new note ensures that the battery remains capable of supplying the short term loads when the performance test is substituted for the service test.

#### Basis

Our letter ELV-03923 dated October 29, 1992, indicated that station batteries would be replaced based on the results of surveillance testing, maintenance inspections, or trending. In response to the letter, we were advised that the surveillance requirements should be revised to incorporate maintenance and testing guidance in draft IEEE Standard 450-1992. Section 5.2 (2) of the draft IEEE Standard states that following the initial test, performance tests should be given to each battery at five-year intervals until it shows signs of degradation as outlined in 5.2 (3). Item 5.2.(3) of this draft standard states:

"(3) Annual performance tests of battery capacity should be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% from its capacity on the previous performance test, or is below 90% of the manufacturer's rating. If the battery has reached 85% of service life, delivers a capacity of 100% or greater of the manufacturer's rated capacity, and has shown no signs of degradation, performance testing at two year intervals is acceptable until the battery shows signs of degradation."

Section 5.4 of the draft standard discusses the modified performance discharge test, and section 6.4 provides for the replacement of cells and reestablishing the benchmark capacity of the battery, and section 7 of the draft standard provides criteria for replacement cells (i. e., replacement cells must be tested prior to installation, and their capacity must be at least 100 percent of the battery capacity).

ENCLOSURE 1A (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT  
TECHNICAL SPECIFICATION REVISIONS  
DC SOURCES

BASIS FOR PROPOSED CHANGE

The proposed changes discussed above are consistent with the draft standard and should provide adequate assurance that the dc sources at VEGP will remain capable of performing their function throughout their expected service life.

## ENCLOSURE 2A

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### 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 changes related to performance testing have been reviewed and deemed not to involve a significant hazards consideration. The basis of this determination is presented below.

#### Background

Research conducted by the NRC and published in NUREG/CR-4096, "Test Series 3: Seismic Fragility Testing of Naturally-Aged Class 1E C&D LCU-13 Battery Cells" and NUREG/CR-5448, "Aging Evaluation of Class 1E Batteries: Seismic Testing" led to the conclusion that batteries maintained and operated in accordance with IEEE Standard 450, "IEEE Recommended Practice for Maintenance, Testing and Replacement of Large Lead Storage Batteries for Generating Stations and Substations" will last for their expected lifetime. It was also concluded that the tests in these documents provide a method of monitoring electrical capacity and an evaluation of adequate seismic capability. Our letter ELV-03923 dated October 29, 1992, indicated that the station batteries would be replaced based on the results of surveillance testing, maintenance inspection, or trending. Telephone conversations with the NRC indicated this would be acceptable if the surveillance requirements were revised to incorporate practices of draft IEEE 450-1992. As requested, our proposed change incorporates practices delineated in the draft IEEE Standard 450-1992.

#### Analysis

The proposed change to the Technical Specification reflects the wording in draft IEEE Standard 450-1992. Based on research conducted by the NRC, batteries maintained and operated in accordance with IEEE 450 will last their expected lifetime. Compliance with the maintenance, operations, and replacement practices of draft IEEE Standard 450-1992 will ensure proper operation of station batteries.

1. The revision to the battery surveillance requirements does not involve a significant increase in the probability or consequence of an accident previously evaluated. The proposed revision to the surveillance requirements ensures the batteries are properly tested and can perform their safety function. The proposed change will have no effect on any initiating event assumed in the safety analysis since it relates only to the frequency of performance testing. Since the batteries will continue to be properly tested and therefore capable of performing their safety function, the consequences of any accident previously evaluated will not be affected.
2. The revision to the battery surveillance requirements does not create the possibility of a new or different kind of accident from any accident previously evaluated. The existing surveillance



## ENCLOSURE 2A (CONTINUED)

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### 10 CFR 50.92 EVALUATION

of the batteries provides an indication of degraded performance, which indicates the battery cells may need to be replaced. The proposed revision will provide the same indication of degraded performance. No new equipment is being introduced to the plant as a result of the proposed change, and no new modes of operation are contemplated. Furthermore, no new limiting single failure would be created by the proposed change.

3. The revision to the battery surveillance requirements does not involve a significant reduction in the margin of safety. The revision ensures the batteries maintain sufficient margin to perform their intended safety function. This margin is demonstrated by the various tests performed on the batteries. Therefore, this proposed change does not involve a significant reduction in the margin of safety.

#### Conclusion

Based upon the preceding analysis, it has been demonstrated that the proposed amendment to the surveillance of the batteries 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 requirement of 10 CFR 50.92 (c) and does not involve a significant hazards consideration.

## ENCLOSURE 1B

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### BASIS FOR PROPOSED CHANGE

##### Proposed Change

The proposed change would revise the float voltage allowable value for each connected cell in table 4.8-2, "Battery Surveillance Requirements," of the Vogtle Electric Generating Plant Unit 1 and Unit 2 Technical Specifications.

This value is currently shown as :

>2.10 volts

The new proposed value is:

">2.07 volts"

Also, the value in the bases in the Technical Specification, page B 3/4 8-2, last paragraph, item 4, should be changed from 2.10 volts to 2.07 volts.

##### Basis

The value of 2.10 volts was originally established based on discussions with the battery manufacturer. Subsequently, the battery manufacturer has indicated that this value was overly conservative and could be changed to 2.07 volts. Appendix C1 of IEEE 450-1980 (also 1987 and draft 1992) discusses float voltage in low-voltage cells and states that cell voltage is not an indication of the state of charge of the battery. The note to the appendix states a cell voltage of 2.07 volts or below, which is not caused by an elevated temperature of the cell indicates internal cell problems which may require cell replacement. An equalizing charge is recommended for cells below 2.13 volts.

The new Standard Technical Specifications (NUREG-1431) have an allowable value of greater than 2.07 for the float voltage of each connected cell. (See Category C in table 3.8.6-1.) The bases for this table indicate that the allowable value for float voltage is based on values from IEEE 450-1980. The Category C values for each connected cell provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When battery parameters are outside the Category C values, the assurance of sufficient capacity does not exist, and the battery must be declared inoperable. Therefore, as long as the batteries of VEGP are maintained with a float voltage for each connected cell >2.07 volts, the batteries are capable of performing their safety function.



## ENCLOSURE 2B

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### 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 change to the Technical Specifications associated with the float voltage of each connected cell has been reviewed and deemed not to involve a significant hazards consideration. The basis of this determination is provided below.

#### Background

The value of 2.10 volts was originally established by the battery manufacturer. Subsequently, the battery manufacturer indicated that the value of 2.10 volts was based on conservatism and that there was no technical basis for the value of 2.10 volts. Appendix C of IEEE-450 indicates that a value of 2.07 volts is acceptable. If the value is 2.07 volts or below, cell replacement may be required. Additionally, the new Standard Technical Specifications (NUREG-1431) have a value greater than 2.07 volts for the float voltage of each connected cell.

#### Analysis

A value of float voltage greater than 2.07 volts provides assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety for the station batteries. If the battery parameters are outside those values, the assurance of sufficient capacity does not exist and the battery must be labeled inoperable. A value of float voltage greater than 2.07 volts indicates the batteries are capable of performing their safety function.

1. The proposed change to the value of float voltage does not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed value of float voltage provides assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety for the station batteries. As such, the proposed change would have no effect on the probability of any initiating event assumed in the safety analysis. Furthermore, since the batteries will remain capable of performing their safety function, the proposed change would have no effect on the consequences of any accident previously evaluated.
2. The change to the float voltage does not create the possibility of a new or different kind of accident from any accident previously evaluated. The change in float voltage does not affect any transient or accident sequence requiring the station batteries. No new operating configuration or failure modes are introduced by the change in float voltage.
3. The margin of safety associated with the change in float voltage is maintained since the batteries will continue to have sufficient capacity to perform their intended function. Analysis

## ENCLOSURE 2B (CONTINUED)

### VOGTLE ELECTRIC GENERATING PLANT TECHNICAL SPECIFICATION REVISIONS DC SOURCES

#### 10 CFR 50.92 EVALUATION

confirms that the batteries can function for all accidents and design transients, including a loss of offsite power. Since the batteries can function for all designed transient and accident conditions, the change of float voltage does not involve a significant reduction in the margin of safety.

#### Conclusion

Based upon the preceding analysis, it has been demonstrated that the proposed amendment to the float voltage of the batteries 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 requirement of 10 CFR 50.93 (c) and does not involve a significant hazards consideration.