



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 90 TO FACILITY OPERATING LICENSE NPF-68
AND AMENDMENT NO. 68 TO FACILITY OPERATING LICENSE NPF-81
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 January 3, 1995, as supplemented by letters dated June 14 and July 6, 1995, Georgia Power Company, et al. (GPC or the licensee) proposed license amendments to change the Technical Specifications (TS) for Vogtle Electric Generating Plant (VEGP or Vogtle), Units 1 and 2. The proposed changes would modify the TS action statements of Sections 3.8.1.1 and 3.8.1.2 in order to revise the methods for exiting action statements associated with an inoperable offsite circuit. Additionally, TS Surveillance Requirement (SR) 4.8.1.1.1 is being revised to distinguish which of the offsite circuits is required to be verified OPERABLE by verifying proper breaker alignment. The proposed amendments would also modify the TS with the addition of a footnote to Section 3.8.3.1 and the expansion of TS Bases 3/4.8. The footnote would allow the redundant emergency busses of 4160 volt switchgear to be temporarily connected within a unit by tie breakers in order to allow a synchronized, manual, hot-bus transfer of offsite power sources. The expansion to TS Bases 3/4.8 would clarify how the standby auxiliary transformer (SAT) can be used to meet TS requirements. The June 14 and July 6, 1995, letters provided clarifying information that did not change the scope of the January 3, 1995, application and initial proposed no significant hazards consideration determination.

The TS revisions are made necessary by a plant modification that involves adding an additional General Design Criteria (GDC) 17 offsite power source to the low voltage switchyard. This additional offsite power source, the SAT with a rating of 13.8/4.16 kV at 10/12.5 MVA, will serve as a "swing" offsite power source capable of connecting to any one of the 4160 volt Class 1E safety busses on either unit. The "swing" terminology is used to describe the SAT's alignment to the onsite electrical distribution system in that it may be manually realigned to Unit 1-Train A, Unit 1-Train B, Unit 2-Train A, or Unit 2-Train B. The SAT is supplied power through a buried cable which can be fed from the licensee's 230 kV grid system or any combination of the six 60 MVA units of combustion turbine electrical generation at the licensee's nearby Plant Wilson, both methods being via the Plant Wilson switchyard 13.8 kV power system. Once the SAT is connected to a safety bus it will be subjected to the same TS requirements as the reserve auxiliary transformers (PATs).

Each unit at Vogtle has two RATs fed from the offsite power system which can be connected to either of the two emergency busses of the 4160 volt switchgear. The RAT for a 4160 volt safety-related bus has the capability to serve as the alternate offsite power source to the other 4160 volt safety-related bus. During normal operation with both RATs available, each 4160 volt Class 1E bus is supplied from a separate RAT. The RATs also have separate 13.8 kV windings which serve as a power source for the unit's nonsafety related 13.8 kV switchgear. The normal feed to the nonsafety related 13.8 kV busses is from the unit auxiliary transformers which are connected to the unit main electrical generator.

2.0 EVALUATION

2.1 Action Statements

The following specific proposed changes to TS Sections 3.8.1.1 and 3.8.1.2 are shown as redline (words added) or strikeout (words deleted).

TS 3.8.1.1.(a)

"The physically independent circuits connected between the offsite transmission network and the onsite Class 1E Distribution System"

Action Statement 3.8.1.1.(a)

"With ~~one offsite circuit of the above required A.C. electrical power sources inoperable~~ less than the above minimum required offsite A.C. circuits OPERABLE due to other than an inoperable automatic load sequencer, demonstrate the OPERABILITY of the remaining ~~A.C. sources~~ required A.C. offsite circuit by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore ~~the~~ a second A.C. offsite circuit"

Action Statement 3.8.1.1.(b)

"... demonstrate the OPERABILITY of the above required A.C. offsite ~~sources~~ circuits by performing Surveillance Requirement 4.8.1.1.1.a"

Action Statement 3.8.1.1.(c)

"With ~~one offsite circuit~~ only one A.C. offsite circuit OPERABLE and one diesel generator of the above required A.C. electrical power sources inoperable due to other than an inoperable automatic load sequencer, demonstrate the OPERABILITY of the remaining ~~A.C. offsite source~~ connected A.C. offsite circuit by performing Surveillance requirement 4.8.1.1.1.a ... Restore at least one ~~of the inoperable~~ sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. power source (any connected offsite circuit or diesel generator) to OPERABLE"

Action Statement 3.8.1.1.(e)

"With ~~two~~ none of the above required offsite A.C. circuits inoperable OPERABLE, restore at least one of the inoperable offsite sources A.C. circuit to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. Following restoration of at least one offsite source A.C. circuit, follow ACTION Statement a with the time requirement of that ACTION Statement based on the time of the initial loss of the remaining inoperable second offsite a.c. circuit."

TS 3.8.1.2.(a)

"One circuit connected between the offsite transmission network and the Onsite Class 1E Distribution System...."

The changes to the action statements of TS 3.8.1.1 and 3.8.1.2 are being made to clarify the method of exiting the action statement associated with an inoperable offsite circuit and to distinguish which of the three offsite circuits is required to be verified operable. Currently, these action statements require that an inoperable offsite source be restored to operable status. However, with the incorporation of the SAT, Vogtle will be able to use this additional offsite source in lieu of restoring the inoperable offsite source that caused the original entry into the Limiting Condition for Operation. The staff evaluated these TS changes with respect to the plant's ability to meet GDC 17 requirements and finds the changes acceptable.

2.2 Surveillance Requirements

The licensee proposed the following change for SR 4.8.1.1.1(a):

"Each of the above required independent circuits connected between the offsite transmission network and the Onsite Class 1E Distribution System"

SR 4.8.1.1.1 is being clarified to distinguish that only an offsite circuit that is connected to the onsite Class 1E distribution system is required to be verified operable with the proper breaker alignment. For example, if the SAT is being used in lieu of an inoperable RAT, the RAT will not be required to be demonstrated operable by proper breaker alignment. For surveillance purposes, while the SAT is connected to the onsite Class 1E distribution system, the SAT shall be demonstrated operable instead of the inoperable RAT by verifying the SAT's proper circuit breaker alignment with the onsite Class 1E distribution system. The staff evaluated this TS change with respect to the plant's ability to meet GDC 17 requirements and finds the change acceptable.

2.3 Footnote to TS 3.8.3.1

The change to this section of the TS consists of the addition of the following footnote:

The redundant emergency busses of 4160 volt switchgear 1/2AA02 and 1/2BA03 may be manually connected within the unit by tie breakers in order to allow transfer of preferred offsite power sources provided the

surveillance requirements of 4.8.1.1(a) are successfully performed within 12 hours prior to the interconnection. This interconnected alignment will be implemented and controlled by plant procedures to assure certain preconditions and limitations are met, as described in TS Bases 3/4.8, so that the ability to simultaneously sequence both trains of LOCA loads is not adversely impacted.

The addition of the footnote will allow a change in the power distribution alignment for the onsite Class 1E safety busses while the SAT is being put into service. The licensee has stated that the new "swing" offsite power source will be connected to any of the RAT's 4.16 kV electrical busses utilizing manual, key interlocked disconnect switches. These disconnect switches are not intended for operation while loaded, nor are they designed to have both the RAT and the SAT paralleled simultaneously at the disconnect switches. Therefore, all parallel transfers must take place at the 4160 volt safety busses. Since the TS requires both of these busses to remain energized during Modes 1 through 4 operation, a dead bus transfer of the SAT and the RAT is prohibited and highly undesirable. The desired method of transfer is to temporarily close a breaker connecting the redundant emergency busses of the 4160 volt switchgear within the unit (which allows transfer between preferred offsite power sources). This configuration will result in one RAT supplying both onsite Class 1E distribution systems during the time it takes to place the other preferred offsite power source into service. (The breakers are expected to remain closed for approximately 2 hours during this temporary alignment.)

Although having both of the Class 1E safety busses fed from one RAT for 2 hours is considered to be outside the current Vogtle TS, GPC has completed preoperational testing (Test 1-300-01) and confirmed that, under most operating conditions, either RAT (Unit 1 or Unit 2) can power both Class 1E safety busses. This was confirmed in NRC NUREG-1137, "Safety Evaluation Report Related to the Operation of Vogtle Electric Generating Plant, Units 1 and 2," Supplement 5 dated January 1987. However, a limitation of the RATs in this configuration was also identified. The licensee has confirmed that accident mitigation could be adversely impacted if the grid voltage were to drop below the minimum expected value of 100 percent while in this configuration. In order to facilitate the transient response of the loads during accident sequential loading while in this temporary alignment, preconditions and limitations governed by procedures have been added to the TS Bases 3/4.8 to preclude grid voltage less than 100 percent. The staff still had concerns related to both the length of time the Class 1E busses remained interconnected and the length time VEGP would be using the SAT. In a letter dated June 14, 1995 the licensee clarified that the SAT would be used only to accomplish RAT maintenance, surveillance, or other applicable corrective actions. Additionally, in this letter, the licensee stated that the SAT would be used only if a RAT was unavailable. In a letter dated July 6, 1995 the licensee clarified that the interconnection of the redundant emergency busses of 4160 volt switchgear is intended to be temporary and the time in this configuration will be minimized to the extent necessary in order to achieve the safe transfer of the preferred offsite power sources. The licensee also agreed to indicate in the footnote that the preconditions and limitations governing the temporary alignment be reflected in TS Bases 3/4.8. The staff

concludes that the licensee has adequately addressed concerns related to the interconnections of the Class 1E safety busses and the use of the SAT, and therefore finds the addition of the footnote to TS Section 3.8.3.1 acceptable.

2.4 Bases

The proposed change to TS Bases 3/4.8 is the addition of the following two paragraphs:

Normally, the two required offsite power source circuits are connected to the onsite Class 1E Distribution System through their respective reserve auxiliary transformers, (RATs). These transformers are utilized as the final point of transmission grid voltage reduction to the onsite Class 1E electrical distribution system. When a RAT is unavailable, the standby auxiliary transformer (an additional 10 CFR Part 50 Appendix A, GDC 17 power source) may be placed into service and connected to the onsite Class 1E Distribution system, in order to meet the TS requirements as an OPERABLE offsite A.C. electrical offsite power circuit.

During power operation in order to facilitate the transfer of preferred offsite power sources, independent of emergency diesel generator operation, the emergency safety buses of 4160 volt switchgear may be manually connected within the unit by tie breakers and fed from one offsite power source provided the following precautions and limitations are followed: 1) either one of the RATs, but not the SAT, may be utilized as the single offsite power source of both 4160 volt safety busses during the transfer evolution; 2) no additional nonsafety related 4160 volt loads, other than those normally fed from a RAT, shall be manually connected to the RAT while the busses are interconnected; 3) the automatic bus transfer schemes for the nonsafety related 4160 volt busses shall be disabled during the interconnection; and 4) the offsite power system should have the minimum grid voltage to assure that the remaining single offsite power source feeding both interconnected 4160 volt safety busses has the capacity and capability to simultaneously sequence both trains of LOCA loads.

The expansion to the Vogtle TS Bases 3/4.8 is being made to introduce the addition of a new GDC 17 offsite power source. The licensee stated that the new SAT may be utilized to meet TS requirements as an OPERABLE ac electrical power source. Normally, this requirement is met with two required offsite power sources (RATs) that are connected to the onsite Class 1E electrical distribution system. Now, with the installation of the SAT, this requirement can be met on a per-unit basis by utilizing one RAT and the SAT. As identified previously, the staff had a concern related to the limitation of the electrical system during the interconnection of the Class 1E safety busses. In this alignment, if the grid voltage dropped below 100 percent of the expected value, one RAT could have trouble sequencing two trains of LOCA loads. Although the licensee recognized this limitation and had procedures in place to preclude this condition, the staff felt that any preconditions and limitations the licensee had related to this interconnection should be stated in the TS Bases. The licensee has subsequently addressed this concern by

including the special precautions and limitations in the TS Bases 3/4.8. Based on the above, the staff concludes that the changes to the TS Bases are acceptable.

The staff has concluded that the installation of the "swing" offsite source coupled with the proposed TS changes provides a plant design that continues to meet GDC 17. Therefore, the staff finds the above changes to the VEGP TS acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 6301 dated February 1, 1995). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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