



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 14, 2012

Mr. M. J. Ajluni  
Nuclear Licensing Director  
Southern Nuclear Operating Company, Inc.  
40 Inverness Center Parkway  
Post Office Box 1295, Bin - 038  
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2, ISSUANCE OF  
AMENDMENTS REGARDING REVISING THE MINIMUM NITROGEN COVER  
PRESSURE IN TECHNICAL SPECIFICATION REQUIREMENT 3.5.1.3  
(TAC NOS. ME6759 AND ME6760)

Dear Mr. Ajluni:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 166 to Renewed Facility Operating License NPF-68 and Amendment No. 148 to Renewed Facility Operating License NPF-81 for the Vogtle Electric Generating Plant, Units 1 and 2, respectively. The amendments consist of changes to the License and Technical Specifications (TSs) in response to your application dated July 26, 2011.

The amendments revise TS Surveillance Requirement (SR) 3.5.1.3, "Accumulators," and SR 3.6.2.1 "Containment Air Locks."

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink that reads "Patrick G. Boyle".

Patrick G. Boyle, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosures:

1. Amendment No. 166 to NPF-68
2. Amendment No. 148 to NPF-81
3. Safety Evaluation

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-424

VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 166  
Renewed License No. NPF-68

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Vogtle Electric Generating Plant, Unit 1 (the facility) Renewed Facility Operating License No. NPF-68 filed by the Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated July 26, 2011 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

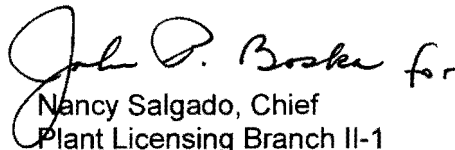
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-68 is hereby amended to read as follows:

C. Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 166, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Nancy Salgado, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-68  
and the Technical Specifications

Date of Issuance: August 14, 2012

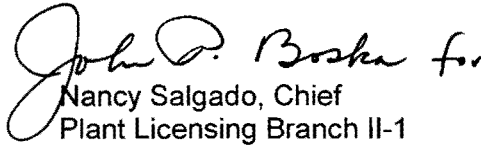
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-81 is hereby amended to read as follows:

C. Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 148, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Nancy Salgado, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to License No. NPF-81  
and the Technical Specifications

Date of Issuance: August 14, 2012

ATTACHMENT

TO LICENSE AMENDMENT NO. 166

RENEWED FACILITY OPERATING LICENSE NO. NPF-68

DOCKET NO. 50-424

AND

TO LICENSE AMENDMENT NO. 148

RENEWED FACILITY OPERATING LICENSE NO. NPF-81

DOCKET NO. 50-425

Replace the following pages of the Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

License

License No. NPF-68, page 4  
License No. NPF-81, page 3

TSs

3.5.1-2  
3.6.2-5

Insert Pages

License

License No. NPF-68, page 4  
License No. NPF-81, page 3

TSs

3.5.1-2  
3.6.2-5

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at reactor core power levels not in excess of 3625.6 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 166 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Southern Nuclear Operating Company shall be capable of establishing containment hydrogen monitoring within 90 minutes of initiating safety injection following a loss of coolant accident.

(4) Deleted

(5) Deleted

(6) Deleted

(7) Deleted

(8) Deleted

(9) Deleted

(10) Mitigation Strategy License Condition

The licensee shall develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
  - 1. Pre-defined coordinated fire response strategy and guidance
  - 2. Assessment of mutual aid fire fighting assets
  - 3. Designated staging areas for equipment and materials
  - 4. Command and control
  - 5. Training of response personnel
- (b) Operations to mitigate fuel damage considering the following:
  - 1. Protection and use of personnel assets
  - 2. Communications
  - 3. Minimizing fire spread
  - 4. Procedures for implementing integrated fire response strategy
  - 5. Identification of readily-available pre-staged equipment
  - 6. Training on integrated fire response strategy

- (2) Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia, pursuant to the Act and 10 CFR Part 50, to possess but not operate the facility at the designated location in Burke County, Georgia, in accordance with the procedures and limitations set forth in this license;
  - (3) Southern Nuclear, pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
  - (4) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40, and 70 to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
  - (5) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;
  - (6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility authorized herein.
- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect, and is subject to the additional conditions specified or incorporated below.

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at reactor core power levels not in excess of 3625.6 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 148 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The Surveillance Requirements (SRs) contained in the Appendix A Technical Specifications and listed below are not required to be performed immediately upon implementation of Amendment No. 74. The SRs listed below shall be

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each accumulator isolation valve is fully open.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.2	Verify borated water volume in each accumulator is $\geq 6555$ gallons and $\leq 6909$ gallons.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.3	Verify nitrogen cover pressure in each accumulator is $\geq 626$ psig and $\leq 678$ psig.	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.4	Verify boron concentration in each accumulator is $\geq 1900$ ppm and $\leq 2600$ ppm.	<p>In accordance with the Surveillance Frequency Control Program</p> <p><u>AND</u></p> <p>For each affected accumulator, once within 6 hours after each solution volume increase of <math>\geq 67</math> gallons, that is not the result of addition from the refueling water storage tank</p>
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator when pressurizer pressure is $> 1000$ psig.	In accordance with the Surveillance Frequency Control Program



**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.</li> <li>2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1.</li> </ol> <p>-----</p> <p>Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.</p>	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	In accordance with the Surveillance Frequency Control Program



UNITED STATES  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 166 TO RENEWED FACILITY OPERATING LICENSE NPF-68

AND

AMENDMENT NO. 148 TO RENEWED FACILITY OPERATING LICENSE NPF-81

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-424 AND 50-425

1.0 INTRODUCTION

By application dated July 26, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML112160414), Southern Nuclear Operating Company, Inc. (SNC, the licensee), requested changes to the Technical Specifications (TSs) for the Vogtle Electric Generating Plant, Units 1 and 2 (Vogtle1 and 2).

The proposed changes would revise TS Surveillance Requirement (SR) 3.5.1.3, "Accumulators," to specify a new minimum indicated nitrogen cover pressure for the Safety Injection accumulators in Surveillance Requirement (SR) 3.5.1.3. The proposed change comes from the need to account for uncertainty associated with the accumulator pressure indication instrumentation. The proposed revision to the SR would be: "Verify nitrogen cover pressure in each accumulator is  $\geq$  626 psig [pounds per square inch gauge] and  $\leq$  678 psig." SNC is currently administratively controlling the minimum indicated accumulator pressure to  $\geq$  626 psig.

The proposed amendments also include an editorial change to SR 3.6.2.1. The current TS 3.6.2, "Containment Air Locks," SR 3.6.2.1 states, "Perform required air lock leakage rate testing in accordance with the Containment Leakage Rage Testing Program." The proposed change would revise SR 3.6.2.1 to state, "Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program" changing the word "rage" to "rate," thus correcting a typographical error.

2.0 REGULATORY EVALUATION

The Commission's regulatory requirements related to the contents of TS, set forth in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, require that the TS limiting conditions for operations are consistent with assumed values of the initial conditions in the licensee's safety analyses. Section 50.36(c)(2)(i) states: "limiting conditions for operation are the lowest functional

capability or performance levels of equipment required for safe operation of the facility. TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met."

NRC Administrative Letter 98-10 covers the discovery of TS that are insufficient to assure plant safety. The discovery of an improper or inadequate TS value or required action is considered a degraded or nonconforming condition as defined in Generic Letter 91-18. Imposing administrative controls in response to improper or inadequate TS is considered an acceptable short-term corrective action. The staff expects that, following the imposition of administrative controls, an amendment to the TS, with appropriate justification and schedule, will be submitted in a timely fashion. Once any amendment correcting the TS is approved, the licensee must update the final safety analysis report, as necessary, to comply with 10 CFR 50.71(e).

### 3.0 TECHNICAL EVALUATION

The functions of the Emergency Core Cooling System accumulators are to supply water to the reactor vessel during the blow-down phase of a loss of coolant accident (LOCA), to provide inventory to help accomplish the refill phase that follows thereafter, and to provide Reactor Coolant System (RCS) makeup for a small break LOCA.

The accumulators are pressure vessels partially filled with borated water and pressurized with nitrogen gas. The accumulators are passive components, since no operator or control actions are required in order for them to perform their function. Internal accumulator tank pressure is sufficient to discharge the accumulator contents to the RCS, if RCS pressure decreases below the accumulator pressure.

The accumulator size, water volume, and nitrogen cover pressure are selected so that three of the four accumulators are sufficient to partially cover the core before significant clad melting or zirconium water reaction can occur following a LOCA. The need to ensure that three accumulators are adequate for this function is consistent with the LOCA assumption that the entire contents of one accumulator will be lost via the RCS pipe break during the blow-down phase of the LOCA.

The TS requirements help ensure that the 10 CFR 50.46 acceptance criteria are met following a LOCA. The requirements are:

- Maximum fuel element cladding temperature is  $\leq 2200^{\circ}\text{F}$
- Maximum cladding oxidation is  $\leq 0.17$  times the total cladding thickness before oxidation
- Maximum hydrogen generation from a zirconium water reaction is  $\leq 0.01$  times the hypothetical amount that would be generated if all of the metal in the cladding cylinders surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react
- Core is maintained in a coolable geometry.

The large and small break LOCA analyses are performed at the minimum nitrogen cover pressure, since sensitivity analyses have demonstrated that higher nitrogen cover pressure results in a computed peak clad temperature benefit. The maximum nitrogen cover pressure limit prevents accumulator relief valve actuation, and ultimately preserves accumulator integrity.

SNC revised the instrument uncertainty associated with the accumulator nitrogen cover pressure indication instrumentation. The uncertainty was increased and necessitated a change in the TS required minimum nitrogen pressure.

The licensee performed an uncertainty calculation reconstitution for the accumulator pressure transmitters and a temperature compensation shift bias of 1.58% was added. This shift bias was added to reflect current methodology and came after discussion with Westinghouse. Currently, the accumulator pressure assumed in large and small break LOCA analyses is 596.6 psig and has an uncertainty of 20.4 psi. When the 596.6 psig assumed is added to the uncertainty value of 20.4 the current TS value of 617 psig for the minimum indicated accumulator nitrogen cover pressure is reached. The addition of the temperature compensation shift bias of 1.58% caused the new uncertainty calculation of accumulator nitrogen pressure from the indication instruments to the main control board to be 28.8 psi which is 8.4 psi greater than the current value assumed in the TS, making the current TS non-conservative. The requested TS 3.5.1.3 minimum indicated nitrogen cover pressure is the current large and small break LOCA analyses nitrogen pressure of 596.6 psig plus the revised uncertainty of 28.8 psi to reach 625.4 which the licensee rounded conservatively to 626 psig.

The maximum accumulator nitrogen cover pressure is not assumed in safety analysis. The maximum accumulator nitrogen cover pressure is used to make sure the accumulator relief valve is not actuated. The setpoint for the maximum accumulator nitrogen cover pressure is 678 psig while the relief valve setpoint is 700 psig. SNC stated that the revised accumulator pressure indication uncertainty will not affect the maximum nitrogen cover pressure based on operating experience that 678 psig setpoint is sufficient to prevent accumulator relief valve actuation.

SNC is currently administratively controlling the minimum indicated accumulator nitrogen cover pressure to  $\geq 626$  psig.

The staff has reviewed the proposed amendment to TS SR 3.5.1.3 and found the proposed change to appropriately maintain the current accumulator pressure assumed in design-basis accident (DBA) analyses.

The staff also reviewed the proposed editorial change to SR 3.6.2.1. The current TS 3.6.2, "Containment Air Locks," SR 3.6.2.1 states:

"Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program."

The proposed change would revise SR 3.6.2.1 to state:

"Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program."

The staff found the change to be editorial and acceptable.

#### 4.0 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.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of facility components 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 (76 FR 55131, September 6, 2011). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). In addition, the editorial correction to SR 3.6.2.1 meets the categorical exclusion criteria set forth in 10 CFR 51.229(c)(10). 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.

#### 6.0 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) there is reasonable assurance that 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.

Principal Contributor: J Miller NRR/DSS/SRXB

Date: August 14, 2012

August 14, 2012

Mr. M. J. Ajluni  
Nuclear Licensing Director  
Southern Nuclear Operating Company, Inc.  
40 Inverness Center Parkway  
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SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2, ISSUANCE OF  
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Dear Mr. Ajluni:

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A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Patrick G. Boyle, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

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2. Amendment No. 148 to NPF-81
3. Safety Evaluation

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NAME	PBoyle (RMartin for)	SFiguroa	SMiranda*	MSpencer w/ changes	NSalgado (JBoska for)	PBoyle (RMartin for)
DATE	08/13/12	08/08/12	07/31/2012	08/09/12	08/14/12	08/14/12

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