



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

September 19, 2017

Mr. James J. Hutto  
Regulatory Affairs Director  
Southern Nuclear Operating Company, Inc.  
P. O. Box 1295, Bin - 038  
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS REGARDING CHANGES TO TECHNICAL SPECIFICATION 3.7.9 TO SUPPORT NUCLEAR SERVICE COOLING WATER TRANSFER PUMP REPAIRS (CAC NOS. MF9495 AND MF9496)

Dear Mr. Hutto:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 192 to Renewed Facility Operating License NPF-68 and Amendment No. 175 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 March 24, 2017, as supplemented by letter dated June 15, 2017.

The amendments revise TS 3.7.9, "Ultimate Heat Sink (UHS)," to extend the Completion Time to restore one inoperable nuclear service cooling water (NSCW) basin transfer pump from 31 days to 46 days. Additionally, a new Condition and associated Required Actions and Completion Times are added to address two inoperable NSCW basin transfer pumps.

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, appearing to read "Michael Orenak".

Michael Orenak, 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. 192 to NPF-68
2. Amendment No. 175 to NPF-81
3. Safety Evaluation

cc w/encls: Distribution via Listserv



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. 192  
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 March 24, 2017, as supplemented by letter dated June 15, 2017, 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:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 192, 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 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, 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: September 19, 2017



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. 50-425

VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 175  
Renewed License No. NPF-81

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Vogtle Electric Generating Plant, Unit 2 (the facility) Renewed Facility Operating License No. NPF-81 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 March 24, 2017, as supplemented by letter dated June 15, 2017, 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.

Enclosure 2

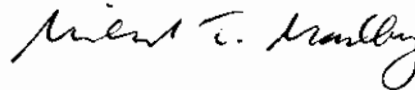
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-81 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 175, 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 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, 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: September 19, 2017

ATTACHMENT

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

TO LICENSE AMENDMENT NO. 192

RENEWED FACILITY OPERATING LICENSE NO. NPF-68

DOCKET NO. 50-424

AND

TO LICENSE AMENDMENT NO. 175

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

3.7.9-2

Insert Pages

License

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

TSs

3.7.9-2

(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. 192, 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 and 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 1 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. 175 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



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One NSCW basin transfer pump inoperable.	D.1 Implement an alternate method of basin transfer to the affected basin.	8 days
	<u>AND</u>	
	D.2 Restore the transfer pump to OPERABLE status.	46 days
E. Two NSCW basin transfer pumps inoperable.	E.1 implement an alternate method of basin transfer for one NSCW basin transfer pump.	24 hours
	<u>AND</u>	
	E.2 Restore one NSCW basin transfer pump to OPERABLE status.	8 days
F. Required Action and associated Completion Time not met.  <u>OR</u>  UHS inoperable for reasons other than Conditions A, B, C, D, or E.	F.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	F.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4. ----- Be in MODE 4.	12 hours



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 192 TO RENEWED FACILITY OPERATING LICENSE NPF-68

AND

AMENDMENT NO. 175 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 letter dated March 24, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17083B097), as supplemented by letter dated June 15, 2017 (ADAMS Accession No. ML17166A506), Southern Nuclear Operating Company, Inc. (SNC, the licensee), requested changes to the Technical Specifications (TSs) for the Vogtle Electric Generating Plant (VEGP), Units 1 and 2. The supplement dated June 15, 2017, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published the *Federal Register* on May 9, 2017 (82 FR 21563).

The proposed changes would modify TS 3.7.9, "Ultimate Heat Sink (UHS)," to extend the Completion Time to restore one inoperable nuclear service cooling water (NSCW) basin transfer pump from 31 days to 46 days. Additionally, a new Condition is added to address two inoperable NSCW basin transfer pumps.

2.0 REGULATORY EVALUATION

2.1 System Description

Sections 9.2.1 and 9.2.5 of the VEGP Final Safety Analysis Report (FSAR) provide a description of the VEGP NSCW system and the VEGP UHS, respectively. The UHS for each unit consists of two NSCW towers, with one tower associated with each train of the NSCW system. Each NSCW tower includes a large water basin, three NSCW pumps (two 50 percent capacity and one standby), one 600 gallon per minute NSCW transfer pump (for the opposite train), and a mechanical-draft cooling tower structure with four fan cells. The two normally

operating NSCW pumps in each train provide water from the basin to remove heat from equipment supporting normal operation, reactor cooldown, and accident mitigation. The NSCW system flow returns to the basin via the mechanical draft cooling tower that transfers heat to the atmosphere. Each tower provides 100 percent of the required heat removal capacity.

The VEGP UHS is operable when the basin level and water temperature are within TS limits, the required number of fans for the atmospheric conditions are operable, and the NSCW transfer pumps are operable. Section 1.9.27 of the VEGP FSAR states that VEGP conforms to Regulatory Guide (RG) 1.27, Revision 2, "Ultimate Heat Sink for Nuclear Power Plants," (ADAMS Accession No. ML003739969) which specifies sufficient water inventory to support design-basis post-accident and safe-shutdown heat removal requirements for 30 days without makeup. The combined inventory of both basins is necessary to provide this capability. The 30-day performance reflects operation of both NSCW trains for one day, operation of one NSCW train for the following 29 days, and transfer of water from the non-operating tower basin to the operating tower basin via the relevant transfer pump as necessary to meet the 30-day inventory guidelines stated in RG 1.27. The transfer pump in each basin receives power from the electrical train associated with the other cooling tower, such that upon loss of either Train A or B power, the capability to mitigate the design basis accident (DBA) by one train with both basins for the full 30 days is available.

## 2.2 Description of Current Technical Specification

VEGP TS 3.7.9 limiting condition for operation (LCO) requires the UHS to be operable in operating Modes 1, 2, 3, and 4. Condition D of TS 3.7.9 applies when the UHS is inoperable because one NSCW basin transfer pump is inoperable. The required actions and completion times (CTs) for this condition are to either restore the transfer pump to operable status within 8 days (Required Action D.1) or implement an alternative method of basin transfer within 8 days (Required Action D.2.1) and restore the transfer pump to operable status within 31 days (Required Action D.2.2).

If one transfer pump becomes inoperable, making its cooling tower basin inventory unavailable to the other cooling tower, the redundant cooling tower basin would not have sufficient inventory to remain operable for 30 days. Current Condition D allows this status for up to 8 days before an alternate method of basin transfer is implemented. If the alternate transfer method is not achieved within the 8 day CT, the plant must be shut down in accordance with current Condition E (proposed Condition F). With the alternate method implemented, the licensee currently has 31 days to restore the inoperable basin transfer pump before plant shutdown is required. Currently, there is a Note for the CT of the REQUIRED ACTION D 2.2 for one time only increase in the CT to 46 days and then 77 days in accordance with License Amendment 165 for VEGP, Unit 2. The Note has expired and is requested by the licensee to be removed.

The U.S. Nuclear Regulatory Commission (NRC) staff issued Amendments 164 and 165 for VEGP Unit 2 on October 31, 2016, and December 21, 2016, respectively (ADAMS Accession Nos. ML16265A162 and ML16354A133). Amendment 164 was a one-time only change to the VEGP, Unit 2, TS LCO 3.7.9 to add a Note to extend the completion time of Condition D.2.2 to 46 days for the 2B NSCW transfer pump refurbishment during VEGP, Unit 2, Cycle 19. Amendment 165 extended the 46 day CT to 77 days because the 2A NSCW transfer pump became inoperable during testing to restore the 2B NSCW transfer pump to operable status following 2B NSCW transfer pump refurbishment. Amendment 165 was applicable only to the 2A NSCW transfer pump during operating Cycle 19 and expired on January 23, 2017.

The bases for the current requirements is in the TS BASES which states the Completion Times are reasonable based on the low probability of an accident occurring during the time allowed to restore the pump or implement an alternate method, the availability of alternate methods, and the amount of time available to transfer the water from one basin to the other under the worst case accident assumptions.

### 2.3 Description of Proposed Change

The proposed change revises TS 3.7.9 for both units. The proposed change deletes the action to restore the transfer pump to OPERABLE status (current Required Action D.1) because that action is already applicable per TS 3.0.2. The proposed change also revises Required Action D.2.1 by changing the lettering from D2.1 to D.1 and adding the phrase, "to the affected basin." The proposed change also revises the lettering (D.2.2 to D.2) for the action to restore the transfer pump to OPERABLE status and increases the CT from 31 days to 46 days. The change also removes the expired note for VEGP, Unit 2.

Current TS 3.7.9 Conditions D and E and associated Required Actions and Completion Times state:

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One NSCW basin transfer pump inoperable.	D.1 Restore the transfer pump to OPERABLE status.	8 days
	<p><u>OR</u></p> <p>D.2.1 Implement an alternate method of basin transfer.</p> <p><u>AND</u></p> <p>D.2.2 Restore the transfer pump to OPERABLE status.</p>	<p>8 days</p> <p>-----NOTE----- A one-time only change of the Completion Time to 77 days is permitted until January 23, 2017 during Vogtle Unit 2, Cycle 19.</p> <p>31 days</p>
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	<p><u>OR</u></p> <p>UHS inoperable for reasons other than Conditions A, B, C, or D.</p> <p><u>AND</u></p> <p>E.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4</p> <p>----- Be in MODE 4.</p>	<p>12 hours</p>

Revised TS 3.7.9 Condition D, new Condition E, and revised/renumbered Condition F and associated Required Actions and Completion Times would state:

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One NSCW basin transfer pump inoperable.	D.1 Implement an alternate method of basin transfer to the affected basin.	8 days
	<u>AND</u> D.2 Restore the transfer pump to OPERABLE status	46 days
E. Two NSCW basin transfer pumps inoperable	E.1 Implement an alternate method of basin transfer for one NSCW basin transfer pump	24 hours
	<u>AND</u> E.2 Restore one NSCW basin transfer pump to OPERABLE status	8 days
F. Required Action and associated Completion Time not met.  <u>OR</u>  UHS inoperable for reasons other than Conditions A, B, C, D, or E.	F.1 Be in MODE 3.	6 hours
	<u>AND</u> F.2 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 4 ----- Be in MODE 4.	12 hours

#### 2.4 Applicable Regulations and Guidance

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical Specifications," requires TSs for nuclear reactors to include items in the following categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) surveillance requirements; (4) design features; and (5) administrative controls. LCOs are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met. Typically, the TSs require restoration of equipment in a timeframe commensurate with its safety significance, along with other engineering considerations.

RG 1.27, Revision 2, describes methods and procedures acceptable to the NRC staff that nuclear power plant facility licensees and applicants can use to establish UHS features of plant systems required by NRC rules and regulations.

Guidance for NRC staff review of TSs is contained in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 16.0, "Technical Specifications," (ADAMS Accession No. ML100351425). The NRC staff has prepared Standard Technical Specifications (STS) for each of the light-water reactor nuclear

steam supply systems and associated balance-of-plant equipment systems. NUREG-0800 specifies that the NRC staff review whether content and format are consistent with the applicable STS. Where TS provisions depart from the reference TSs, the NRC staff determines whether proposed differences are justified by uniqueness in plant design or other considerations. The applicable STS for VEGP are contained in NUREG-1431, Revision 4.0, "Standard Technical Specifications: Westinghouse Plants," (ADAMS Accession No. ML12100A222). The VEGP UHS cooling tower system differs from the STS UHS cooling tower system by having basin transfer pumps, while the STS cooling tower system does not. The basin transfer pumps allow the combined inventory of both cooling tower basins to meet the 30-day regulatory guidelines of RG 1.27, Revision 2. Due to the unique design of the VEGP UHS, the STS do not address the aspects of the UHS configuration relevant to the proposed change, which addresses the inoperable basin transfer pump.

FSAR Section 9.2.5.1.1, "Safety Design Bases," states, in part, that:

- A. The ultimate heat sink is designed so that a single failure coincident with a loss of offsite power does not result in inadequate core cooling or prevent a safe shutdown under extreme meteorological conditions.
- B. Regulatory Guide 1.27 recommends the UHS be capable of providing sufficient cooling for at least 30 days, with no makeup water, assuming two-train operation for 1 day and single-train operation for the remaining 29 days. System design is based upon maximum conditions of dry and wet bulb temperatures as they affect peak basin temperature, tower evaporation losses, and basin capacity.

FSAR Section 9.2.5.2.3, "System Operation," states, in part, that:

Similarly, loss of the transfer pump in one train can be compensated for by operating the other NSCW train or by operating each train separately.

FSAR Section 3.1.4, "Fluid Systems," discusses the plants conformance to 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 44, "Cooling Water," by stating:

The component cooling water (CCW) and nuclear service cooling water (NSCW) systems are provided to transfer heat from plant safety-related components to the ultimate heat sink. These systems are designed to transfer their respective heat loads under all anticipated normal and accident conditions. Suitable redundancy, leak detection, systems interconnection, and isolation capabilities are incorporated in the design of these systems to assure the required safety function, assuming a single failure, with either onsite or offsite power.

### 3.0 TECHNICAL EVALUATION

The NRC staff reviewed the amendment request by comparing the proposed TS changes against the requirements and guidelines of 10 CFR 50.36, NUREG-0800 Section 16.0, NUREG 1431, RG 1.27 and FSAR Sections 3.1.4 and 9.2.5.

The licensee proposed a permanent 15-day increase in the CT for Condition D from 31 to 46 days based on previous repairs having taken 33 to 37 days. Additional time has been requested beyond 37 days to allow for other possible maintenance difficulties, since the repair process is difficult with an approximate 80-foot pump column length requiring custom alignment

with its mounting brackets. Since the proposed changes are effectively an increase in the time VEGP relies on the alternative method of basin inventory transfer, the NRC staff review is based on the reliability of the alternate method and its effects on TS 3.7.9 Conditions D, E, and F.

### 3.1 Reliability of the Alternate Method of Basin Transfer

The alternate method utilizes a NSCW pump associated with the basin with the inoperable basin transfer pump and involves connecting a 6-inch diameter hose between the cross piping flange in that tower and the basin of the other tower. The hose would be connected to the 6-inch cross pumping flange using an adapter. If water transfer is required, doors would be propped open in both towers and the hose would be routed approximately 330 feet to the affected tower basin.

The licensee described two measures that would enhance the reliability of the proposed alternate method of transfer. The first is to provide detailed actions for the alternative transfer source in a procedure, which will be completed prior to implementation of the proposed change. The licensee stated that this procedure, a Standard Operating procedure (13150), will be issued in accordance with 10 CFR Part 50, Appendix B. The procedure instructs maintenance personnel to implement the alternative source transfer in the field and gives operators clear instructional guidance in the event of an occurrence when the transfer system is called upon to perform its function. The actions involved for implementing the alternative transfer source include connecting a hose to NSCW piping and manual valve manipulation to allow water flow to the affected NSCW cooling tower. This manual valve manipulation is to prevent over pressurization of the alternate method piping. Since the NSCW pump may be operating at low flow conditions when performing the transfer function, the licensee stated that the nominal shutoff head for the NSCW Pumps is approximately 370-ft or 160-psig with the system design of 200-psig. Therefore, if a deadhead condition were created, the discharge pressure would likely exceed the 150 psi hose rating. The licensee stated that the Standard Operating Procedure will control pressure by means of a manual throttle valve to prevent over-pressurization of the hose.

The second is that since the alternate method attachment would add a static load to the existing seismic qualified piping, a pipe stress analysis and an evaluation of associated pipe supports for each NSCW cross-tie connection and piping will be performed to evaluate the effects of seismic and static loading for the alternate cross-tie hookup. The licensee stated that a pipe stress analysis and an evaluation of associated pipe supports was performed for the 1A NSCW Tower cross-tie connection, demonstrating that the cross-tie connection has no adverse affect on the NSCW piping systems or associates supports. The licensee also stated that configurations for all alternate transfer connections are similar, therefore, results of the remaining analyses are expected to be satisfactory. SNC has an action in its corrective action program to perform these remaining evaluations, which will be completed prior to implementation of the proposed change. Because the results are expected to be similar, the completion of the remaining analyses with satisfactory results before implementation ensures the seismic qualification of the cooling tower piping and pipe supports under seismic and expected static loads is acceptable.

The licensee stated that the electrical power to the operable NSCW train is administratively protected per plant procedures for the duration of the extension and work is limited to further ensure the reliability of the opposite train power.

Based on the above, the NRC staff concludes that the alternate method of basin transfer will be reliable because it will be implemented by a procedure prepared under the quality requirements of 10 CFR 50 Appendix B, the connection of the alternate method equipment will not adversely

of 10 CFR 50 Appendix B, the connection of the alternate method equipment will not adversely affect the seismic qualification of the cooling tower piping and pipe supports, and the electrical power to the operable safety related NSCW pump will be administratively protected.

### 3.2 Supplemental Equipment

The licensee identified supplemental equipment that could be used to perform the inventory transfer function in the event the proposed alternative method was not available. This equipment included a hydraulically-driven submersible pump and a diesel-hydraulic power skid that, combined with appropriate hoses and fittings, would be able to pump water from one NSCW basin to another. The licensee stated that the use of supplemental equipment will be included in the procedure that governs the alternate means of transfer. The NRC staff finds that this additional capability enhances defense-in-depth and adds to the reliability of the transfer function.

### 3.3 Changes to Condition D

The NRC staff reviewed the licensee's proposed changes to TS 3.7.9 Condition D to remove the original Required Action D.1. With the proposed removal of the original Required Action D.1, a method of basin transfer is still required to be implemented within 8 days; therefore, the NRC staff finds the proposed change acceptable.

The licensee revised Required Action D.1 adds the term, "...to the affected basin." This term was added to address a situation that when in Condition E, the first basin transfer pump restored in proposed Required Action E.2 and the alternate method of basin transfer in proposed Required Action E.1 both transfer water into the same basin. In this situation, there would be no apparent method of transfer into the other basin. Because an alternate method of basin transfer per Required Action E.1 is met, it appears possible that proposed Required Action D.1 for the remaining inoperable NSCW basin transfer pump could be erroneously concluded to have been met. The NRC staff finds the addition of the phrase "to the affected basin" acceptable, because it clarifies Required Action D.1.

The water mass data from FSAR Table 9.2.5-3 and FSAR Table 9.2.5-5 indicates that each cooling tower would provide sufficient cooling for several days after a DBA. Consequently, should a DBA occur requiring the NSCW system and the UHS when a basin transfer pump is inoperable, either tower is capable of performing the safety function of providing cooling water for greater than 24 hours and requires no basin transfer capability. FSAR Section 9.2.5.2.3 confirms the use of each tower separately by stating the loss of a transfer pump in one train can be compensated for by operating the other NSCW train or by operating each train separately. Therefore, when one cooling tower basin becomes depleted, the other cooling tower and basin could be placed in service to continue the accident mitigation. Furthermore, if one tower had a failure, the transfer function would not be necessary for several days post-accident, allowing significant time to make the alternate method available. Thus, extending the CT from 31 days to 46 days, which relies on the alternate method of basin transfer to alleviate an inoperable basin transfer pump, would only matter if: (1) a DBA occurred, (2) the cooling tower that houses the inoperable basin transfer pump also became inoperable and could not be repaired within a few days, and (3) a significant amount of time had passed to deplete the inventory of the other cooling tower basin. The likelihood of the three conditions occurring simultaneously are very low, while the reliability of the alternate method of basin transfer is high if such conditions did occur, ensuring that the extended CT maintains public health and safety. The risk associated with plant shutdown are also averted by allowing an extended CT.



The NRC staff finds that increasing the CT to 46 days does not detract from meeting the single failure criterion for the UHS and compliance with RG 1.27, as discussed in FSAR Sections 9.2.5.11, and conformance with GDC 44, as stated in FSAR Section 3.1.4, is maintained. Therefore, the NRC staff concludes that the increase in CT from 31 days to 46 days is acceptable.

The licensee proposed to remove the expired Note in the CT for current Condition D. The NRC staff concludes that this deletion is administrative in nature and is, therefore, acceptable.

### 3.4 Addition of a New Condition E

The NSCW pumps in the basin with the inoperable transfer pump would not necessarily be available (on a loss of offsite power and associated diesel generator failure) when the other tower is performing the UHS function post-accident. However, the water mass data from Table 9.2.5-3 and Table 9.2.5-5 of the VEGP FSAR indicate that each cooling tower would provide sufficient cooling for several days after a DBA. Consequently, should a DBA occur requiring the NSCW system and the UHS, either tower is capable of performing the safety function of providing cooling water for greater than 24 hours and no basin transfer capability is required. When one cooling tower basin is depleted, the other cooling tower and basin could be placed in service to continue the accident mitigation. If one tower suffered a failure, the transfer function would not be necessary for several days post-accident, therefore, the proposed Required Action E.1 is acceptable.

The licensee's proposed Required Action E.2 allows both transfer pumps to be inoperable for 8 days, provided an alternate method of transfer for one transfer pump is implemented within 24 hours of both basin transfer pumps being inoperable. During the time both NSCW transfer pumps are out of service, the required fans, basin level, and basin temperature are required to be maintained within the limits of the TS. As stated above, the water mass data from FSAR Tables 9.2.5-3 and 9.2.5-5 indicates that each cooling tower would provide sufficient cooling for several days after a DBA. Consequently, should a DBA occur requiring the NSCW system and the UHS, either tower is capable of performing the safety function of providing cooling water for greater than 24 hours and requires no basin transfer capability. When one cooling tower basin is depleted, the other cooling tower and basin could be placed in service to continue the accident mitigation. With one alternate means available within 24 hours, the 30-day safety function of one tower could be available provided no additional failures in that train, thereby meeting the guidance of RG 1.27. With one transfer pump restored within the 8-day CT, the licensee would exit proposed Condition E, but remain in proposed Condition D to ensure the Required Action D.2 is achieved within the required 46 days. Based on the above, the NRC staff concludes that the proposed Required Action E.2 is acceptable.

### 3.5 Addition of Condition F

The licensee proposed Condition F and Required Actions F.1 and F.2 are the original Condition E and Required Actions E.1 and E.2, but with the addition of identifying the proposed Condition E in, "UHS inoperable for reasons other than Conditions A, B, C, D, or E." The NRC staff concludes that this re-lettering to be administrative in nature and is, therefore, acceptable.

### 3.6 Summary

The NRC staff reviewed the proposed changes to TS 3.7.9 and found that:

- The alternate method of basin transfer will perform its safety function when required because procedures are in place and the licensee will protect the necessary train.
- The supplemental equipment enhances defense-in-depth and adds to the reliability of the transfer function.
- The likelihood of a DBA and all of the failures and conditions necessary to require the use of the inoperable basin transfer pump is very low and that the proposed changes to Required Actions D.1 and D.2 are acceptable.
- Each cooling tower could provide adequate UHS capability for several days if a DBA occurred requiring no need to transfer basin water. If a failure occurred in either Train A or Train B, a minimum of 24 hours would be available to repair the failure before basin transfer would be necessary. If no other failure occurred, basin transfer would not be necessary for the 30 days of DBA mitigation. The proposed changes to Required Actions E.1 and E.2 are acceptable.

The NRC staff concludes that the regulations in 10 CFR 50.36 will continue to be met, therefore, the proposed changes to TS 3.7.9 are 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 on July 31, 2017. The NRC staff confirmed that the State official had no comments on July 31, 2017.

### 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 (82 FR 21563, May 9, 2017). 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.

## 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 Contributors: G. Purciarello

Date: September 19, 2017

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS REGARDING CHANGES TO TECHNICAL SPECIFICATION 3.7.9 TO SUPPORT NUCLEAR SERVICE COOLING WATER TRANSFER PUMP REPAIRS (CAC NOS. MF9495 AND MF9496) DATED SEPTEMBER 19, 2017

**DISTRIBUTION:**

Public	RidsNrrDssStsb Resource
LPL2-1 R/F	RidsRgn2MailCenter Resource
RidsNrrPMVogtle Resource	RidsNrrDorlDpr Resource
RidsAcrs_MailCTR Resource	RidsNrrDorlLpl2-1 Resource
RidsNrrLAKGoldstein Resource	GPurciarello, NRR
RidsNrrDssSbpb Resource	

**ADAMS Accession No.: ML17213A133**

\*via email

OFFICE	NRR/DORL/LPL2-1/PM	NRR/DORL/LPL2-1/LA	NRR/DSS/SBPB/BC*	NRR/DSS/STSB/BC(A)
NAME	MOrenak	KGoldstein	RDennig	JWhitman
DATE	08/03/17	08/21/17	07/20/17	08/07/17
OFFICE	OGC	NRR/DORL/LPL2-1/BC	NRR/DORL/LPL2-1/PM	
NAME	RNorwood	MMarkley	MOrenak	
DATE	08/17/17	09/19/17	09/19/17	

**OFFICIAL RECORD COPY**