



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

May 6, 2016

Mr. George A. Lippard, III  
Vice President, Nuclear Operations  
South Carolina Electric & Gas Company  
Virgil C. Summer Nuclear Station  
P.O. Box 88, Mail Code 800  
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 - ISSUANCE OF  
AMENDMENT TO ADOPT TSTF-523, REVISION 2 (CAC NO. MF6769)

Dear Mr. Lippard:

The U.S. Nuclear Regulatory Commission (NRC or the Commission) has issued the enclosed Amendment No. 204 to Renewed Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1, in response to your application dated September 29, 2015.

The amendment adopts the NRC-approved Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

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

Sincerely,

A handwritten signature in black ink, reading "Shawn Williams", is positioned below the word "Sincerely,".

Shawn A. Williams, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-395

Enclosures:

1. Amendment No. 204 to NPF-12
2. Safety Evaluation

cc w/Enclosures: Distribution via Listserv



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

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

DOCKET NO. 50-395

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 204  
Renewed License No. NPF-12

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Virgil C. Summer Nuclear Station, Unit No. 1 (the facility) Renewed Facility Operating License No. NPF-12 filed by the South Carolina Electric & Gas Company (the licensee), dated September 29, 2015, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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 as 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.

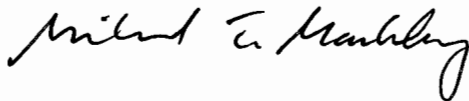
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-12 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 204, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. South Carolina Electric & Gas Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This 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 the Renewed Facility  
Operating License and Technical  
Specifications

Date of Issuance: May 6, 2016

ATTACHMENT TO AMENDMENT NO. 204

RENEWED FACILITY OPERATING LICENSE NO. NPF-12

DOCKET NO. 50-395

Replace the following pages of Renewed Facility Operating License No. NPF-12 and Appendix "A" Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3  
3/4 4-4  
3/4 4-5  
3/4 4-6  
3/4 5-4  
3/4 6-12  
3/4 9-7  
3/4 9-8

Insert

3  
3/4 4-4  
3/4 4-5  
3/4 4-6  
3/4 5-4  
3/4 6-12  
3/4 9-7  
3/4 9-8

- (3) SCE&G, 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 amended through Amendment No. 33;
  - (4) SCE&G, 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 neutron sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
  - (5) SCE&G, 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; and
  - (6) SCE&G, 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.
- C. This renewed 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

SCE&G is authorized to operate the facility at reactor core power levels not in excess of 2900 megawatts thermal in accordance with the conditions specified herein and in Attachment 1 to this renewed license. The preoperational tests, startup tests and other items identified in Attachment 1 to this renewed license shall be completed as specified. Attachment 1 is hereby incorporated into this license.
  - (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 204, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. South Carolina Electric & Gas Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS

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4.4.1.3.1 The required Reactor Coolant pump(s), if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% of wide range indication at least once per 12 hours.

4.4.1.3.3 At least one Reactor Coolant or RHR loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.3.4 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.\*

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\* Not required to be performed until 12 hours after entering MODE 4.

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN – LOOPS FILLED

#### LIMITING CONDITION FOR OPERATION

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3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation\*, and either:

- a. One additional RHR loop shall be OPERABLE<sup>#</sup>, or
- b. The secondary side water level of at least two steam generators shall be greater than 10 percent of wide range indication.

APPLICABILITY: MODE 5 with Reactor Coolant loops filled<sup>##</sup>.

#### ACTION:

- a. With less than the above required loops OPERABLE and/or with less than the required steam generator level, immediately initiate corrective action to return the required loops to OPERABLE status or to restore the required level as soon as possible.
- b. With no residual heat removal loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required residual heat removal loop to operation.

#### SURVEILLANCE REQUIREMENTS

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4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.4.1.3 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

<sup>#</sup> One residual heat removal loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation.

<sup>##</sup> A Reactor Coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 300°F unless 1) the pressurizer water volume is less than 1288 cubic feet and/or 2) the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

<sup>\*</sup> The RHR pump may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN – LOOPS NOT FILLED

#### LIMITING CONDITION FOR OPERATION

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3.4.1.4.2 Two residual heat removal (RHR) loops shall be OPERABLE<sup>#</sup> and at least one RHR loop shall be in operation.\*

APPLICABILITY: MODE 5 with Reactor Coolant loops not filled.

ACTION:

- a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

#### SURVEILLANCE REQUIREMENTS

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4.4.1.4.2.1 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.4.2.2 Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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# One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE and in operation.

\* The RHR pump may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.



## EMERGENCY CORE COOLING SYSTEMS

### SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

	<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
1.	8884	HHSI Hot Leg Injection	Closed
2.	8886	HHSI Hot Leg Injection	Closed
3.	8888A	LHSI Cold Leg Injection	Open
4.	8888B	LHSI Cold Leg Injection	Open
5.	8889	LHSI Hot Leg Injection	Closed
6.	8701A	RHR Inlet	Closed
7.	8701B	RHR Inlet	Closed
8.	8702A	RHR Inlet	Closed
9.	8702B	RHR Inlet	Closed
10.	8133A	Charging/HHSI Cross-Connect	Open
11.	8133B	Charging/HHSI Cross-Connect	Open
12.	8106	Charging Mini-Flow Header Isolation	Open

- b. At least once per 31 days by:

1. Verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position\*, and
2. Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water.

- c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the reactor building which could be transported to the RHR and Spray Recirculation sumps and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1. For all accessible areas of the reactor building prior to establishing CONTAINMENT INTEGRITY, and
2. Of the areas affected with the reactor building at the completion of each reactor building entry when CONTAINMENT INTEGRITY is established.

- d. At least once per 18 months by:

1. Verifying automatic interlock action of the RHR system from the Reactor Coolant System by ensuring that, with a simulated or actual Reactor Coolant System pressure signal greater than or equal to 425 psig, the interlocks prevent the valves from being opened.

\* Not required to be met for system vent flow paths opened under administrative control.

## CONTAINMENT SYSTEMS

### 3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

#### REACTOR BUILDING SPRAY SYSTEM

##### LIMITING CONDITION FOR OPERATION

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3.6.2.1 Two independent reactor building spray systems shall be OPERABLE with each spray system capable of taking suction from the RWST and automatically transferring suction to the spray sump.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one reactor building spray system inoperable, restore the inoperable spray system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable spray system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

##### SURVEILLANCE REQUIREMENTS

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4.6.2.1 Each reactor building spray system shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
  1. Verifying that each valve (manual, power operated, or automatic) in the flow path that is not locked, sealed or otherwise secured in position is in its correct position\*, and
  2. Verifying Containment Spray locations susceptible to gas accumulation are sufficiently filled with water.
- b. By verifying, that on recirculation flow, each pump develops a discharge pressure of greater than or equal to 195 psig when tested pursuant to Specification 4.0.5.
- c. At least once per 18 months during shutdown, by:
  1. Verifying that each automatic valve in the flow path actuates to its correct position on each of the following test signals a Phase 'A', Reactor Building Spray Actuation, and Containment Sump Recirculation.
  2. Verifying that each spray pump starts automatically on a Reactor Building Spray Actuation test signal.
- d. At least once per 10 years by performing an air or smoke or equivalent flow test through each spray header and verifying each spray nozzle is unobstructed.

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\* Not required to be met for system vent flow paths opened under administrative control.

## REFUELING OPERATIONS

### 3/4.9.7 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

#### HIGH WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

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3.9.7.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation.\*

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is greater than or equal to 23 feet.

#### ACTION:

With no residual heat removal loop OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

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4.9.7.1.1 At least one residual heat removal loop shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 2800 gpm at least once per 12 hours.

4.9.7.1.2 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\* The residual heat removal loop may be removed from operation for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

## REFUELING OPERATIONS

### LOW WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

---

3.9.7.2 Two independent Residual Heat Removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation.\*

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is less than 23 feet.

#### ACTION:

- a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status or to establish greater than or equal to 23 feet of water above the reactor pressure vessel flange, as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

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4.9.7.2.1 At least one residual heat removal loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 2800 gpm at least once per 12 hours.

4.9.7.2.2 Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.

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\* Prior to initial criticality the residual heat removal loop may be removed from operation for up to 1 hour per 8 hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.



UNITED STATES  
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 204

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-395

1.0 INTRODUCTION

By application dated September 29, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15275A089), South Carolina Electric & Gas Company (SCE&G, the licensee) submitted a license amendment request (LAR) for the Virgil C. Summer Nuclear Station, Unit No. 1 (VCSNS). Specifically, the licensee requested to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications (STS) Change Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation" (ADAMS Accession No. ML13053A075), dated February 21, 2013. The availability of this technical specification (TS) improvement was announced in the *Federal Register* on January 15, 2014 (79 FR 2700), as part of the Consolidated Line Item Improvement Process. The licensee also proposed non-technical format and editorial changes.

The proposed changes would revise surveillance requirements (SRs) related to gas accumulation for the emergency core cooling system (ECCS). The proposed changes also add new SRs related to gas accumulation for the residual heat removal (RHR) and containment spray (CS) systems. TS Bases changes associated with these SRs would also be made.

The licensee stated that it has reviewed the information contained in the model safety evaluation dated December 23, 2013 (ADAMS Accession No. ML13255A169), and that the LAR is consistent with NRC-approved TSTF 523.

## 2.0 REGULATORY EVALUATION

### 2.1 Background

Gas accumulation in reactor systems can result in water hammer, pump cavitation, and pumping of non-condensable gas into the reactor vessel. These effects may result in the subject system being unable to perform its specified safety function. The NRC issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated January 11, 2008, to address the issue of gas accumulation in ECCS, decay heat removal (DHR), and CS systems (ADAMS Accession No. ML072910759). The industry and NRC staff agreed that a change to the STS and plant-specific TSs would be necessary to address some issues discussed in GL 2008-01. TSTF-523 contains changes to the TS SRs and TS Bases to address some of the concerns in GL 2008-01. The licensee proposed amending the VCSNS TSs using a plant-specific adoption of the TSTF-523 changes.

### 2.2 Technical Specification Changes

Changes were proposed for the following SRs:

SR 4.5.2.b.2  
SR 4.6.2.1.a

The addition of the following new SRs were proposed (for the below listed TSs, respectively):

SR 4.4.1.3.4  
SR 4.4.1.4.1.3  
SR 4.4.1.4.2.2  
SR 4.6.2.1.a.2  
SR 4.9.1.7.2  
SR 4.9.7.2.2

- TS 3/4.4.1.3, "Reactor Coolant System, Hot Shutdown"
- TS 3/4.4.1.4.1, "Reactor Coolant System, Cold Shutdown - Loops Filled"
- TS 3/4.4.1.4.2, "Reactor Coolant System, Cold Shutdown - Loops Not Filled"
- TS 3/4.5.2, "ECCS Subsystems- $T_{avg} \geq 350^{\circ}\text{F}$ "
- TS 3/4.6.2.1, "Containment Systems, Depressurization and Cooling Systems Reactor Building Spray System"
- TS 3/4.9.7.1, "Refueling Operations, Residual Heat Removal and Coolant Circulation High Water Level"
- TS 3/4.9.7.2, "Refueling Operations, Low Water Level"

### 2.3 Regulatory Review

The regulations in Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 or similar plant-specific principal design criteria provide design requirements. Appendix B to 10 CFR Part 50, the TSs, and the licensee's quality assurance programs provide operating

requirements. The regulatory requirements of 10 CFR Part 50, Appendix A, which are applicable to gas management in the subject systems include: General Design Criteria (GDC) 1, 34, 35, 36, 37, 38, 39, and 40. GDC 1 requires that the subject systems be designed, fabricated, erected, and tested to quality standards. GDC 34 requires an RHR system designed to maintain specified acceptable fuel design limits and to meet design conditions that are not exceeded if a single failure occurs and specified electrical power systems fail. GDC 35, 36, and 37 require an ECCS design that meets performance, inspection, and testing requirements. Additionally, the regulations in 10 CFR 50.46 provide specified ECCS performance criteria. GDC 38, 39, and 40 require a containment heat removal system design that meets performance, inspection, and testing requirements.

Quality assurance criteria provided in 10 CFR Part 50, Appendix B, which apply to gas management in the subject systems, include Criteria III, V, XI, XVI, and XVII. Criteria III and V require measures to ensure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2, "Definitions," and as specified in the LAR, are correctly translated into controlled specifications, drawings, procedures, and instructions. Criterion XI requires a test program to ensure that the subject systems will perform satisfactorily in service and requires that test results be documented and evaluated to ensure that test requirements have been satisfied. Criterion XVI requires measures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected, and that significant conditions adverse to quality are documented and reported to management. Criterion XVII requires maintenance of records of activities affecting quality.

The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36(c). The regulations at 10 CFR 50.36 require that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. Typically, Section 5 of TSs requires that licensees establish, implement, and maintain written procedures covering the applicable procedures recommended in Appendix A to Regulatory Guide (RG) 1.33, Revision 2, "Quality Assurance Program Requirements (Operation)" (ADAMS Accession No. ML003739995). Appendix A to RG 1.33, Revision 2, identifies instructions for filling and venting the ECCS and DHR system, as well as for draining and refilling heat exchangers. Standard TSs and most licensee TSs include SRs to verify that at least some of the subject systems piping is filled with water.

The NRC's guidance for the format and content of licensee TSs can be found in NUREG-1431, Revision 4, "Standard Technical Specifications - Westinghouse Plants."

Regulatory guidance for the NRC staff's review of containment heat removal systems, ECCS, and RHR systems is provided in the following revisions and sections of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition" (SRP) during the review.

- Revision 5 of SRP, Section 6.2.2, "Containment Heat Removal Systems," dated March 2007 (ADAMS Accession No. ML070160661), provides the procedures concerning the review of containment heat removal under post-accident conditions to help ensure compliance with GDC 38, 39, and 40.
- Revision 3 of SRP, Section 6.3, "Emergency Core Cooling System," dated March 2007 (ADAMS Accession No. ML070550068), provides the procedures concerning the review of ECCS to help ensure compliance with GDC 35, 36, and 37.
- Revision 5 of SRP, Section 5.4.7, "Residual Heat Removal (RHR) System," dated May 2010 (ADAMS Accession Number ML100680577), provides the procedures concerning the review of the RHR system as it is used to cool the reactor coolant system during, and following, shutdown to help ensure compliance with GDC 34.

### 3.0 TECHNICAL EVALUATION

The NRC staff evaluated the licensee's proposed change against the applicable regulatory guidance in the STS, as modified by TSTF-523. The proposed change adopted the TS format and content, to the extent practicable, contained in the changes made to NUREG-1431, "Standard Technical Specifications Westinghouse Plants" by TSTF-523. The NRC staff found that the proposed change is consistent with guidance in the STS, as modified by TSTF-523.

The NRC staff compared the proposed changes to the existing SRs and the regulatory requirements of 10 CFR 50.36(c).

The licensee proposed the following TS changes:

- (1) Add SR 4.4.1.3.4, which states, "Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days.\*" with a footnote that states, "\*Not required to be performed until 12 hours after entering MODE 4."
- (2) Add SR 4.4.1.4.1.3, which states, "Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days."
- (3) Add SR 4.4.1.4.2.2, which states, "Verify RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days."
- (4) Add a note to SR 4.5.2.b.1, which states, "Not required to be met for system vent flow paths opened under administrative control."
- (5) Revise the language for SR 4.5.2.b.2 from, "Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping high points." to, "Verify ECCS locations susceptible to gas accumulation are sufficiently filled with water."
- (6) Renumber SR 4.6.2.1.a to 4.6.2.1.a.1 and add a footnote reference, \*, to a footnote that states, "\*Not required to be met for system vent flow paths opened under administrative control."



- (7) Add SR 4.6.2.1.a.2, which states, "Verify Containment Spray locations susceptible to gas accumulation are sufficiently filled with water," with a frequency of once per 31 days.
- (8) Renumber SR 4.9.7.1 to 4.9.7.1.1 and add SR 4.9.7.1.2, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days."
- (9) Renumber SR 4.9.7.2 to 4.9.7.2.1 and add SR 4.9.7.2.2, which states, "Verify required RHR loop locations susceptible to gas accumulation are sufficiently filled with water at least once per 31 days."

The new language for the SRs was developed using licensee responses to GL 2008-01 and the NRC discussion contained in Task Interface Agreement (TIA) 2008-03, "Emergency Core Cooling System (ECCS) Voiding Relative to Compliance with Surveillance Requirements (SR) 3.5.1.1, 3.5.2.3, and 3.5.3.1," (ADAMS Accession No. ML082560209). Many of the GL 2008-01 responses stated that licensees identified system locations susceptible to gas accumulation. In the TIA, the NRC stated that the intent of the TS SRs, which state, "full of water," may be met if the licensee can establish, through an operability determination, that there is a reasonable expectation that the system in question will perform its specified safety function. Therefore, the phrase, "sufficiently filled with water" was recommended for the proposed TS changes. In the TSs, "sufficiently filled with water" is understood to mean "sufficiently filled with water to support operability." The regulation at 10 CFR 50.36(c)(3) states that one of the purposes of the SR is to verify that the LCO is met. Therefore, the new SR language, "Verify the [system name] locations susceptible to gas accumulation are sufficiently filled with water," is acceptable since this language will allow the licensee to make a conclusion as to whether or not a system is operable.

The language for the notes that states the SR does not have to be performed until 12 hours after entering Mode 4 for pressurized water reactors is acceptable because the note provides a limited time to perform the surveillance after entering the applicability of the LCO. However, under the STS usage rules (STS Section 1.4), the requirement to manage gas accumulation is not affected. Licensees must have confidence that the SR can be met, or the LCO must be declared not met.

The language for the notes that allow the SRs to not be met for system vent flow paths opened under administrative control is necessary to allow the licensee to credit administratively controlled manual action to close the system vent flow path in order to maintain system operability during system venting and performance of the proposed gas accumulation SR. Therefore, these notes are acceptable.

The licensee also proposed formatting and editorial changes that are non-technical in nature and improve the internal consistency of the TSs. The licensee proposed removing the indent for the phrase "and in operation\*, and either:" from the LCO 3.4.1.4.1 statement. The licensee proposed adding the word "vessel" between the words "pressure" and "flange" in TS 3.9.7.2 ACTION a. The first change is a minor formatting change that makes the formatting for the LCO 3.4.1.4.1 graphically consistent with the rest of the TSs. The second change is an editorial

change that corrects the omission of the word "vessel" from the term "reactor pressure vessel flange." These two changes are acceptable and do not materially change the TSs. The NRC staff found that the proposed SRs meet the regulatory requirements of 10 CFR 50.36 because they provide assurance that the necessary quality of systems and components will be maintained and that the LCO will be met. Therefore, the NRC staff finds the proposed amendment acceptable.

#### 4.0 STATE CONSULTATION

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

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on November 24, 2015 (80 FR 73241). Accordingly, the amendment meets 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 amendment.

#### 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Matthew Hamm

Date: May 6, 2016

May 6, 2016

Mr. George A. Lippard, III  
Vice President, Nuclear Operations  
South Carolina Electric & Gas Company  
Virgil C. Summer Nuclear Station  
P.O. Box 88, Mail Code 800  
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 - ISSUANCE OF  
AMENDMENT TO ADOPT TSTF-523, REVISION 2 (CAC NO. MF6769)

Dear Mr. Lippard:

The U.S. Nuclear Regulatory Commission (NRC or the Commission) has issued the enclosed Amendment No. 204 to Renewed Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1, in response to your application dated September 29, 2015.

The amendment adopts the NRC-approved Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler TSTF-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

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

Sincerely,

/RA/

Shawn A. Williams, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-395

Enclosures:

1. Amendment No. 204 to NPF-12
2. Safety Evaluation

cc w/Enclosures: Distribution via Listserv

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**ADAMS Accession No.: ML16104A295**

\*by internal memo (ML16103A474)

OFFICE	DORL/LPL2-1/PM	DORL/LPL2-1/LA	DSS/STSB/BC*	OGC – NLO w/comments
NAME	SWilliams	LRonewicz	AKlein	BHarris
DATE	5/2/2016	4/28/2016	4/18/2016	5/4/2016
OFFICE	DORL/LPL2-1/BC	DORL/LPL2-1/PM		
NAME	MMarkley	SWilliams		
DATE	5/5/2016	5/6/2016		

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