

V. C. Summer Nuclear Station  
Bradham Blvd & Hwy 215, Jenkinsville, SC 29065  
Mailing Address:  
P.O. Box 88, Jenkinsville, SC 29065  
DominionEnergy.com



November 27, 2019

Attn: Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Serial No.19-480  
VCS-LIC/BAB R0  
Docket No. 50-395  
License No. NPF-12

**SOUTH CAROLINA ELECTRIC & GAS COMPANY**  
**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1**  
**TECHNICAL SPECIFICATION BASES REVISIONS**  
**UPDATED THROUGH OCTOBER 2019**

In accordance with Virgil C. Summer Nuclear Station (VCSNS) Unit 1 Technical Specifications (TS) 6.8.4.i.4, South Carolina Electric & Gas Company<sup>(1)</sup>, acting for itself and as agent for South Carolina Public Service Authority, submits revisions to the TS Bases.

This update includes changes to the TS Bases since the previous submittal in December 2017. The enclosed changes revised by Bases Revision Notices (BRN) 18-005, BRN 18-006, BRN 18-007, BRN 18-008, and BRN 19-002 were implemented under the provision of 10 CFR 50.59. Changes are annotated by vertical revision bars and the BRN number at the bottom of the affected TS Bases page.

Should you have any questions, please call Michael S. Moore at (803) 345-4752.

Sincerely,

A handwritten signature in black ink, appearing to read "George A. Lippard", written over a circular stamp.

George A. Lippard  
Site Vice President  
V.C. Summer Nuclear Station

Commitments contained in this letter: None

Enclosure 1: Summary of Bases Changes

Enclosure 2: Technical Specification Bases Revisions Updated Through October 2019

cc: G. J. Lindamood – Santee Cooper  
L. Dudes – NRC Region II  
S. A. Williams – NRC Project Manager  
NRC Resident Inspector

(1) In a letter dated July 30, 2019, South Carolina Electric & Gas Company (SCE&G) requested a License Amendment to amend the VC Summer operating license to reflect the name change from SCE&G to Dominion Energy South Carolina (DESC). The amendment request is currently under review by the NRC.

## **SUMMARY OF BASES CHANGES**

### **Bases Revision Notice (BRN) No. 18-005 Technical Specification (TS) Amendment No. 214**

Description of Change: This change added a section to TS 3/4.7.2 Bases that states the following: "Containment Temperature can be considered as the lower limit on the steam generator shell. The steam generator shell temperature may be considered to be greater than 70°F if the ambient containment temperature is above 70° F for at least 8 hours. The on-contact temperature can be used as an alternative to the containment temperature method."

Reason and Basis for Change: This change relocated information from TS Relocation/Interpretation (TSR) 1044 to TS Bases section TS 3/4.7.2. This change was implemented under Action 23 of VCSNS Change Management Plan Number CR-10-00870, "Eliminating Technical Specification Interpretations." To meet the intent of the Change Management Plan, TSR-1044 was eliminated and the information relocated to TS Bases 3/4.7.2. The relocation information provided amplifying information to the TS Bases concerning the use of ambient air temperature history to determine if the steam generator shell temperature is greater than 70°F. The activity was administrative in nature and did not change TS Applicability, Actions or Surveillance Requirements.

### **BRN No. 18-006 TS Amendment No. 213**

Description of Change: This change added a section to TS 4.0.2 Bases to clarify that it can only be applied to TS Surveillance Requirements. It cannot be applied to TS Action Requirements or to Section 6.0 Requirements unless specified. A statement was also added to specify that rounding up of Surveillance extensions is not allowed.

Reason and Basis for Change: This change relocated information from TSR 1007 to TS Bases section TS 4.0.2. This change was implemented under Action 11 of VCSNS Change Management Plan Number CR-10-00870, "Eliminating Technical Specification Interpretations." To meet the intent of the Change Management Plan, TSR-1007 was eliminated and the information relocated to TS Bases 4.0.2.

Part 1 of TSR 1007 provides an interpretation for TS 4.0.2, "Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval." It clarifies that it can only be applied to TS Surveillance Requirements. It cannot be applied to TS Action Requirements or to Section 6.0 Requirements. The basis for this is letter CGSS-09-0911-NO, which is a letter from the V.C. Summer Station Manager, dated 8/10/1983, which provides clarification on TS 4.0.2. This information was added to the bases along with the addition of "unless specified" since some programs such as the "Ventilation Filter Testing Program", and the "Control Room Envelope Habitability Program" specify the use of TS 4.0.2.

Part 2 of this interpretation indicated that grace periods may be rounded up to the next full day for those surveillance frequencies greater than or equal to 7 days where TS 4.0.2 applies. Additional research was performed to determine the basis for this interpretation. CGSS- 11847-

SQA documents a QA review of GTP-702, Revision 3. One of the comments from the review questioned the basis of an 8-day grace period for a 31-day surveillance frequency. The response was that a 25% extension of 31 days would be 7.75 days which could then be rounded to 8 days. This was based on a discussion with J. Skolds (NRC Resident). The NRC resident stated that it is not necessary to count hours for frequencies more than 7 days. The report was dated November 28, 1983. Additional research could not find a sound basis to allow the non-conservative rounding for the extension of a surveillance frequency. Industry benchmarking and discussions with the NRC concluded that this is not an industry practice.

**BRN No. 18-007**  
**TS Amendment No. 213**

Description of Change: This change added bases for Surveillance Requirement 4.8.4.1.a.1 for medium voltage circuit breakers.

Reason and Basis for Change: This change relocated information from TSR 1037 to TS Bases. This change was implemented under Action 15 of VCSNS Change Management Plan Number CR-10-00870, "Eliminating Technical Specification Interpretations." To meet the intent of the Change Management Plan, TSR-1037 was eliminated and the information relocated to TS Bases in the form of an explanation of the Surveillance Requirements (SR 4.8.4.1.a.1) for medium voltage circuit breakers.

SR 4.8.4.1.a.1.(c) provides the retest requirements for a medium voltage circuit breaker found inoperable during the functional test described in SR 4.8.4.1.a.1.(b). SR 4.8.4.1.a.1.(c) states specifically, "for each circuit breaker found inoperable...an additional representative sample of at least 10% of all circuit breakers of the inoperable type shall also be functionally tested." TSR 1037 explained that a failure of 1 relay with the tested circuit breaker requires the retest not just of 10% of that type of relay, but 10% (or 1 breaker) of the population of breakers.

**BRN No. 18-008**  
**TS Amendment No. 215**

Description of Change: This change added amplifying information to TS 3/4.3.3.4 Bases contained in TSR 1013.

Reason and Basis for Change: This change relocated information from TSR 1013 to TS. This change was implemented under Action 12 of VCSNS Change Management Plan Number CR-10-00870, "Eliminating Technical Specification Interpretations." To meet the intent of the Change Management Plan, TSR-1013 was eliminated and the amplifying information relocated to TS Bases.

TSR 1013 provided an interpretation of TS 3.3.3.4, specifically listing the required meteorological instrumentation by equipment number. The listing of meteorological instrumentation was already included in procedures and was not added to the TS Bases. Additionally, this TSR provided clarification for what constitutes a Channel with respect to operability. The amplifying information was added to the TS Bases.

**BRN No. 19-002**  
**TS Amendment No. 214**

Description of Change: This change updated TS Bases Page 3/4 0-2c from Regulatory Guideline 1.160 Revision 3 to Regulatory Guideline 1.160 Revision 4.

Reason and Basis for Change: This change provides guidance on Maintenance Rule scoping of FLEX equipment.

**TECHNICAL SPECIFICATION BASES REVISIONS**  
**UPDATED THROUGH OCTOBER 2019**

<b><u>Revision Notice #</u></b>	<b><u>Pages Affected</u></b>
BRN 18-005	B 3/4 7-3
BRN 18-006	B 3/4 0-2b
BRN 18-007	B 3/4 8-5
BRN 18-008	B 3/4 3-2
BRN 19-002	B 3/4 0-2c

## PLANT SYSTEMS

### BASES

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#### 3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within the reactor building in the event the steam line rupture occurs within the reactor building. The OPERABILITY of the main steam isolation valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

The statement "The provisions of Specification 3.0.4 are not applicable" only applies when transitioning from mode 3 to mode 2. The provisions of Specification 3.0.4 are applicable when transitioning from mode 2 to mode 1.

#### 3/4.7.1.6 FEEDWATER ISOLATION VALVES

The OPERABILITY of the Feedwater Isolation Valves serves to 1) limit the effects of a Steam Line rupture by minimizing the positive reactivity effects of the Reactor Coolant System Cooldown associated with the blowdown, and 2) limit the pressure rise within the reactor building in the event of a Steam Line or Feedwater Line rupture within the reactor building.

The statement "The provisions of Specification 3.0.4 are not applicable" only applies when transitioning from mode 3 to mode 2. The provisions of Specification 3.0.4 are applicable when transitioning from mode 2 to mode 1.

#### 3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on the average impact values of the steam generator material at 10°F and are sufficient to prevent brittle fracture. Containment temperature can be considered as the lower limit on the steam generator shell. The steam generator shell temperature may be considered to be greater than 70°F if the ambient containment temperature is above 70°F for at least 8 hours. The on-contact temperature can be used as an alternative to the containment temperature method.

#### 3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

#### 3/4.7.4 SERVICE WATER SYSTEM

The OPERABILITY of the service water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

#### 3/4.7.5 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink level and temperature ensure that sufficient cooling capacity is available to either 1) provide normal cooldown of the facility, or 2) to mitigate the effects of accident conditions within acceptable limits.

## APPLICABILITY

### BASES

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4.0.2 Specification 4.0.2 establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are performed at each refueling outage and are specified with an 18-month surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. The limitation of Specification 4.0.2 is based on engineering judgment and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval. This Specification can only be applied to Technical Specification (TS) Surveillance Requirements. It cannot be applied to TS Action Requirements or to Section 6.0 Requirements unless specified. Surveillance extensions shall not be rounded up.

4.0.3 Surveillance Requirement (SR) 4.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside their specified limits when a surveillance has not been completed within the specified frequency. A delay period of up to 24 hours or up to the limit of the specified frequency, whichever is greater, applies from the point in time that it is discovered that the surveillance has not been performed in accordance with SR 4.0.2 and not at the time that the specified frequency was not met.

This delay period provides adequate time to complete surveillances that have been missed. This delay period permits the completion of a surveillance before complying with required Actions or other remedial measures that might preclude completion of the surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the surveillance, the safety significance of the delay in completing the required surveillance, and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the requirements.

When a surveillance with a frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 4.0.3 allows for the full delay period up to the specified frequency to perform the surveillance. However, since there is not a time interval specified, the missed surveillance should be performed at the first reasonable opportunity.

SR 4.0.3 provides a time limit for, and allowances for the performance of, surveillances that become applicable as a consequence of MODE changes imposed by required Actions.

Failure to comply with specified frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 4.0.3 is a flexibility, which is not intended to be used as an operational convenience to extend surveillance intervals.

## ELECTRICAL POWER SYSTEMS

### BASES

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#### 3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to the medium voltage (7.2 kV) circuit breakers provide assurance of breaker reliability by testing 10% of the circuit breakers and their associated relays and control circuits at least once per 18 months on a rotating basis. The only medium voltage conductors that penetrate the containment are for the three RCP motors. The breakers associated with these conductors are listed on FSAR Figure 8G-2. A failure of any portion of the integrated system (relays, control circuit and circuit breaker) results in an inoperable circuit breaker. A retest in accordance with Surveillance Requirement 4.8.4.1.a.1.(c) of an additional representative sample of at least 10% of all circuit breakers equates to a retest of one circuit breaker and its associated relays and control circuit. Retests are performed until no more failures are found or all breakers have been tested.

The surveillance requirements applicable to lower voltage circuit breakers provide assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker. Each manufacturer's molded case and metal case circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of circuit breakers, it is necessary to divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

The surveillance requirements of the circuit breakers for non-Class 1E cables located in trays which do not have cable tray covers and which provide protection for cables that, if faulted, could cause failure in both adjacent, redundant Class 1E cables ensures that the integrity of Class 1E cables is not compromised by the failure of protection devices to operate in the non-Class 1E cables.



## INSTRUMENTATION BASES

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### 3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve.

For the purpose of measuring  $F_{\alpha}(Z)$  or  $F_{\Delta H}^N$  a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in recalibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the QUADRANT POWER TILT RATIO when one Power Range Channel is inoperable.

### 3/4.3.3.3 SEISMIC INSTRUMENTATION

Deleted.

### 3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23, "Onsite Meteorological Programs," February 1972.

At least one detector must be working at each elevation for the channel to meet the minimum OPERABLE requirements of Table 3.3-8 for wind speed and wind direction. For Atmospheric Stability Delta T, at least one pair of detectors must be working at each elevation for the channel to meet the minimum OPERABLE requirements of Table 3.3-8.

### 3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

### 3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION

The PAM Instrumentation LCO provides OPERABILITY requirements for Regulatory Guide 1.97 Type A monitors, which provide information required to perform certain manual actions specified in the Emergency Operating Procedures. These manual actions ensure that a system can accomplish its safety function and are credited in the safety analyses. Additionally, this LCO addresses Regulatory Guide 1.97 instruments that have been designated Category I, non-Type A.

The OPERABILITY of the PAM instrumentation ensures there is sufficient information available on selected unit parameters to monitor and assess unit status following an accident.

LCO 3.3.3.6 requires two OPERABLE channels for most Functions. Two OPERABLE channels ensure no single failure prevents operators from getting the information necessary for them to determine the safety status of the unit, and to bring the unit to and maintain it in a safe condition following an accident.

Furthermore, OPERABILITY of two channels allows a CHANNEL CHECK during the post accident phase to confirm the validity of displayed information.

## APPLICABILITY

### BASES

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While up to 24 hours or the limit of the specified frequency is provided to perform the missed surveillance, it is expected that the missed surveillance will be performed at the first reasonable opportunity. The determination of first reasonable opportunity should include consideration of the impact on plant risk (from delaying the surveillance as well as any plant configuration changes required or shutting the plant down to perform the surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementing guidance, NRC Regulatory Guide 1.160, Revision 4, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed surveillances will be placed in the Corrective Action Program.

If a surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Allowed Outage Time (AOT) for the required Action for the applicable LCO conditions begin immediately upon expiration of the delay period. If a surveillance is failed within the delay period, then the equipment is inoperable, or the variable is considered outside the specified limits and the AOT of the required Action for the applicable LCO begin immediately upon the failure of the surveillance.

Completion of the surveillance within the delay period allowed by this specification, or within the AOT of the Action, restores compliance with SR 4.0.1.

4.0.4 This specification establishes the requirement that all applicable surveillances must be met before entry into an OPERATIONAL MODE or other condition of operation specified in the Applicability statement. The purpose of this specification is to ensure that system and component OPERABILITY requirements or parameter limits are met before entry into a MODE or condition for which these systems and components ensure safe operation of the facility. This provision applies to changes in OPERATIONAL MODES or other specified conditions associated with plant shutdown as well as startup.