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April 7, 2016
RC-16-0043

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSE AMENDMENT REQUEST - LAR 14-02607
TECHNICAL SPECIFICATION 3/4.7.1.2, "EMERGENCY FEEDWATER
SYSTEM"

Pursuant to 10CFR50.90, South Carolina Electric & Gas Company (SCE&G), acting for itself and as agent for South Carolina Public Service Authority, hereby requests an amendment to the Virgil C. Summer Nuclear Station (VCSNS) Unit 1 Technical Specifications (TS).

The proposed change would revise the Emergency Feedwater (EFW) System pump performance testing requirements in TS 3/4.7.1.2, "Emergency Feedwater System," Surveillance Requirements (SRs) 4.7.1.2.a.1 and 4.7.1.2.a.2. The VCSNS pump performance SRs will be revised to conform more closely to the corresponding NUREG-1431 Revision 4, "Standard Technical Specifications - Westinghouse Plants," (STS) requirements as applicable to VCSNS Unit 1. The proposed change to the VCSNS pump performance SRs (4.7.1.2.a.1 and 4.7.1.2.a.2) is necessary to facilitate planned modifications to the EFW system that will improve EFW flow margins. In addition, the proposed change includes the deletion of an expired allowed outage time extension that extended the six hour time allowed to be in Hot Standby of TS 3/4.7.1.2 Action b. to 24 hours. This temporary allowed outage time extension was granted by the NRC in Amendment 203, issued by NRC letter dated March 9, 2016. The allowed outage time extension expired on March 18, 2016.

Attachment 1 provides an analysis of the proposed change. Attachment 2 contains the marked-up version of the affected TS pages and Attachment 3 contains the reprinted versions of the affected TS pages.

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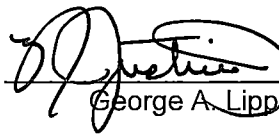
The VCSNS Plant Safety Review Committee and the Nuclear Safety Review Committee have reviewed and approved the proposed changes. SCE&G has notified the State of South Carolina in accordance with 10CFR50.91(b).

The EFW modifications are planned to be made in the Spring 2017 refueling outage. SCE&G requests approval of the proposed amendment by April 8, 2017 to support the implementation of the modification. Once approved, the amendment will be implemented within 30 days.

If you have any questions or require additional information, please contact Bruce Thompson at (803) 931-5042.

I certify under penalty of perjury that the foregoing is true and correct.

4/7/16
Executed on

 For
George A. Lippard

WLT/GAL/

Attachment(s):

1. Analysis of Proposed Technical Specification Change
2. Proposed Change - Marked Up TS Pages
3. Proposed TS Pages - Retyped

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		PRSF (RC-16-0043)

**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12**

Attachment 1

Analysis of Proposed Technical Specification Change

Subject: This evaluation supports a request to amend South Carolina Electric & Gas Company (SCE&G), Technical Specifications (TS) to modify the pump performance Surveillance Requirements (SRs) 4.7.1.2.a.1 and 4.7.1.2.a.2 of TS 3/4.7.1.2, "Emergency Feedwater System," to be more consistent with the corresponding standard TS SR 3.7.5.2 in TS 3.7.5, "Auxiliary Feedwater (AFW) System," in NUREG-1431, Rev. 4. In addition, the evaluation supports the deletion of an expired allowed outage time that extended the 6 hour time allowed to be in Hot Standby of TS 3/4.7.1.2 Action b. to 24 hours.

1.0 SUMMARY DESCRIPTION

In accordance with the provisions of 10 CFR 50.90, SCE&G, acting for itself and as agent for South Carolina Public Service Authority, requests Nuclear Regulatory Commission (NRC) review and approval to amend Operating License NPF-12 for Virgil C. Summer Nuclear Station (VCSNS) Unit 1.

South Carolina Electric & Gas Company (SCE&G) requests an amendment to revise the VCSNS TS 3/4.7.1.2, "Emergency Feedwater System," Surveillance Requirements (SRs) 4.7.1.2.a.1 and 4.7.1.2.a.2 to adopt the requirements of the corresponding SR 3.7.5.2 of TS 3.7.5, "Auxiliary Feedwater (AFW) System," in NUREG-1431 Revision 4, "Standard Technical Specifications - Westinghouse Plants," (Ref. 1) (STS). The proposed TS change would replace the current VCSNS Emergency Feedwater (EFW) TS 3/4.7.1.2 SR 4.7.1.2.a.1 and 4.7.1.2.a.2 with a single SR that is modeled after the corresponding SR 3.7.5.2 in TS 3.7.5, "Auxiliary Feedwater (AFW) System," in NUREG-1431. The proposed change would retain some aspects of the current VCSNS SRs to maintain consistency with the remainder of the VCSNS SRs and TS requirements in general. In addition, the proposed change includes the deletion of an expired allowed outage time that extended the 6 hour time allowed to be in Hot Standby of TS 3/4.7.1.2 Action b. to 24 hours.

Attachment 2 contains the marked-up VCSNS EFW TS.

Reason for Change

SCE&G is planning a modification to the EFW System to improve the head/flow margin of its two motor-driven and one turbine driven EFW pumps. The modification involves the addition of cavitating venturis and automatic recirculation valves in the EFW discharge flowpaths. The EFW System modification will be performed under the provisions of 10CFR50.59. The modification does result in a change to the required EFW pump head and flow values which are currently specified in the VCSNS TS, and continues to ensure that the FSAR Chapter 15 accident analysis acceptance criteria is met.

The proposed TS change requests the relocation from the TS of the specific EFW pump head and flow values to the Inservice Testing Program. The change is thus not dependent on the planned EFW modification. However, the proposed TS change is necessary to allow the implementation of the planned EFW system modification.

The current VCSNS TS SRs contain specific EFW pump head and flow values. A review of the STS for Westinghouse plants (NUREG-1431), indicates that specific numerical values are not included in the corresponding STS SR 3.7.5.2 requirements. The corresponding SR in NUREG-1431 verifies that the developed head of each EFW pump at the flow test point is greater than or equal to the required developed head and is performed in accordance with the Inservice Testing Program. As such, implementation of the STS SR would remove the EFW pump head and flow numerical values from the current TS to allow administrative control of these values within the design basis of the plant.

Implementation of the STS SR would reduce the future administrative burden (affecting both SCE&G and NRC resources) for processing TS changes that may affect the VCSNS EFW system pump head and flow values. This reduction in potential administrative burden is consistent with the intent of the SR in NUREG-1431. Revising the VCSNS TS to be more consistent with the STS provides assurance of the compatibility of the VCSNS TS with the STS going forward. This compatibility will help facilitate the incorporation of any future STS changes into the VCSNS TS.

In addition, the proposed change will delete an expired allowed outage time that extended the 6 hour time allowed to be in Hot Standby of TS 3/4.7.1.2 Action b. to 24 hours.

2.0 PROPOSED CHANGES

Minor variations and/or deviations from the STS terminology, are required because the VCSNS TS are based on the previous Westinghouse standard TS in NUREG-0452 (Ref. 2). Consequently, the VCSNS TS wording and format do not directly correspond to STS wording and format. The format of STS notes is revised to conform more closely to the current VCSNS text format. Therefore, the proposed change would integrate the STS SR into the existing VCSNS TS text and format while maintaining the internal consistency of the VCSNS TS and SRs.

The following descriptions address each of the proposed changes in more detail:

1. Removal of Temporary 24 hour Allowed Outage Time Extension

The current VCSNS EFW TS 3.7.1.2 Action b. states:

- b. With two emergency feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours* and in HOT SHUTDOWN within the following 6 hours.

The 6 hour allowed outage time is modified by an * footnote that states:

* The ACTION to be in at least HOT STANDBY in 6 hours is extended to 24 hours to test (and perform remedial maintenance on) the motor driven emergency feedwater pump flow control valves per surveillance requirement 4.7.1.2.c.2. This extension expires on March 18, 2016.

The proposed change would delete the * from Action b. and delete the associated footnote. As stated in the * footnote, the 24 hour allowed outage time extension expired on March 18, 2016. Therefore, the temporary allowed outage time extension provided by the * footnote is no longer applicable to the VCSNS TS.

2. Revision of EFW Pump Performance SRs

The current VCSNS EFW TS SRs 4.7.1.2.a.1 and 4.7.1.2.a.2 state:

4.7.1.2 Each emergency feedwater pump shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 - 1. Verifying that each motor driven pump develops a total head of greater than or equal to 3800 feet at greater than or equal to 90 gpm flow.

2. Verifying that the steam turbine driven pump develops a total head of greater than or equal to 3140 feet at a flow of greater than or equal to 97 gpm when the secondary steam supply pressure is greater than 865 psig. The provisions of Specification 4.0.4 are not applicable.

The proposed change would replace the current VCSNS EFW TS SR 4.7.1.2.a.1 and 4.7.1.2.a.2 with new SR 4.7.1.2.d.1 which states:

- d. In accordance with the Inservice Testing Program as required by Specification 4.0.5 by verifying:
 1. The developed head of each emergency feedwater pump at the flow test point is greater than or equal to the required developed head. Notes: 1) Not required to be performed for the turbine driven emergency feedwater pump until secondary steam supply pressure is greater than 865 psig. 2) The provisions of Specification 4.0.4 are not applicable for the turbine driven emergency feedwater pump.

The proposed new SR incorporates elements of the corresponding STS SR 3.7.5.2. Consistent with the STS, the SR interval is revised from at least every 31 days to in accordance with the Inservice Testing Program. Also, consistent with the STS, the proposed surveillance specifies that "the developed head of each emergency feedwater pump at the flow test point is greater than or equal to the required developed head" in place of specifying the pump head and flow values. The proposed SR notes, which modify the performance of the SR for the turbine driven pump, remain consistent with the current SR requirements (i.e., secondary steam supply pressure is greater than 865 psig) and the method used in NUREG-0452 type TS for modifying the performance of an SR (i.e., taking exception to the provisions of Specification 4.0.4). The exception to the provisions of Specification 4.0.4 is necessary to allow Mode 3 to be entered so that the turbine driven EFW pump performance can be verified at the appropriate steam pressure.

The proposed change replaces current SRs 4.7.1.2.a.1 and 4.7.1.2.a.2 with new SR 4.7.1.2.d.1. Current SRs 4.7.1.2.a.1, 4.7.1.2.a.2 will be replaced with the statement, "Not Used."

3.0 BACKGROUND

The EFW System includes 2 electric motor driven EFW pumps, 1 turbine driven EFW pump, the condensate storage tank, necessary piping, valves, instrumentation, and controls. The system is designed such that no single failure prevents delivery of minimum total flow of 380 gpm to at least 2 steam generators pressurized to 1211 psig while limiting flow to a postulated secondary side line break inside the Reactor Building. Pump and turbine bearings are cooled by the pumped feedwater, thereby making pump operation independent of plant cooling systems. The quick start, steam turbine driven EFW pump is supplied with steam from the Main Steam System and is designed to operate without air or electrical power. Each EFW pump is provided with a fixed-restriction minimum flow system. This provides for continuous recirculation.

Each pump motor is supplied from a separate, independent Class 1E electric system bus. Complete physical separation is followed throughout for control and instrumentation systems. The required instrumentation and control are powered from separate and independent vital buses. The steam supply to the turbine driven EFW pump consists of connections to the safety class sections of 2 main steam lines upstream of the main steam isolation valves. Two connections are provided to obtain redundancy of supply in the event of a main steam line break. Each connection is provided with a remote manual motor operated gate valve and a check valve for positive isolation in the event of a main steam break. In the common line to the pump turbine, a normally closed, fail open steam inlet valve is provided. This valve has slow opening characteristics to minimize shock to the turbine during automatic startup. This line then connects to a turbine trip and throttle valve which is part of the turbine package. The turbine discharge steam exhausts to atmosphere through a roof vent.

The EFW pumps take suction from the condensate storage tank. Each pump draws from a common header through a locked open isolation valve and a check valve. The redundant backup source of supply is the Service Water System. The A service water loop can supply the A electric motor drive EFW pump and the turbine driven EFW pump. The B service water loop can also supply the turbine driven EFW pump and the B electric motor driven EFW pump. Suction lines to each pump from each service water loop have normally closed motor operated isolation valves. These valves are automatically opened on low pressure in the EFW pump suction header from the condensate storage tank. Remote manual control of these valves is also provided, as well as provision for local manual operation. The plant can operate indefinitely, if required, without normal feedwater.

Two EFW lines supply each steam generator, one from the electric motor driven EFW pumps and one from the turbine driven EFW pump. Two sets of normally open isolation valves and normally open, pneumatically operated, flow control valves, designed to fail open upon loss of control signal or air, are provided on each line to each steam generator. One set controls flow from the electric motor driven EFW pumps; the other, controls flow from the turbine driven EFW pump. Remote manual control of the flow control valves from the control room and Control Room Evacuation Panel is provided, as

well as provision for local manual operation. Safety class air accumulators are provided for the pneumatically operated valves. These accumulators have sufficient capacity to permit remote valve closure for isolation of a secondary system break. The two EFW lines to each steam generator combine into one common header to each steam generator downstream of the flow control valves and isolation valves.

The EFW System is required to deliver sufficient feedwater to the steam generators for cooldown upon loss of the normal feedwater supply. The EFW System is used, additionally, to supply feedwater to the steam generators during startup, shutdown, and layup operations. EFW pump starting is automatic. The EFW System operates in conjunction with the Turbine Bypass System, if available, or the main steam power relief valves and safety valves, to remove thermal energy from the steam generators.

The system is designed to automatically deliver feedwater, at a minimum total flow of 380 gpm, to at least 2 steam generators pressurized to 1211 psig. There is sufficient redundancy to establish this flow while sustaining a single active failure in the system in the short term or a single active or passive failure in the long term. The EFW System operates until the Residual Heat Removal (RHR) System can be placed in operation. The RHR system is started when reactor coolant pressure and temperature are approximately 400 psig and less than 350°F, respectively.

The EFW System is required for plant startup. Fill and maintenance of steam generator water level is accomplished by manual control of feedwater flow rates from the Control Room. The flow rate to each steam generator is individually adjusted as required in response to the Control Room steam generator water level indication. After normal steam generator water level is reached, flow rates are adjusted as required.

4.0 TECHNICAL ANALYSIS

1. Removal of Temporary 24 hour Allowed Outage Time Extension

The proposed change includes the deletion of an expired allowed outage time that extended the six hour time allowed to be in Hot Standby of TS 3/4.7.1.2 Action b. to 24 hours. This temporary allowed outage time extension was granted by the NRC in Amendment 203 (Ref. 3). The 24 hour allowed outage time extension expired on March 18, 2016. As such, the deletion of this temporary provision in the TS is an administrative change that removes an expired allowed outage time. Therefore, the proposed change is acceptable and has no technical impact on the VCSNS TS.

2. Revision of EFW Pump Performance SRs

Current VCSNS SRs 4.7.1.2.a.1 and 4.7.1.2.a.2 specify the testing requirements for the EFW pumps (one SR for the motor-driven pumps and one SR for the turbine driven pump). The current EFW pump SRs are required to be performed at least once per 31 days and include specific values for total pump head, flow and steam pressure for the turbine driven pump. The SR applicable to the turbine driven pump also contains a statement that the provisions of Specifications 4.0.4 are not applicable. VCSNS Specification 4.0.4 states:

“Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the stated surveillance interval or as otherwise specified. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements.”

The statement in the current SR regarding the provisions of Specification 4.0.4 being not applicable is necessary to allow entry into Mode 3 where steam pressure is sufficient (greater than 865 psig as stated in the SR) to verify the performance of the turbine driven pump. The exception to the provision of Specification 4.0.4 is the method used in NUREG-0452 type TS (such as the VCSNS TS) to allow entry in the Mode of Applicability of a TS in order to perform a surveillance. As such, in order to maintain the internal consistency of the VCSNS TS, the exception to the provisions of Specification 4.0.4 for the turbine driven EFW pump is retained in the proposed new SR.

The proposed change would replace the two separate current SRs (one for the motor driven pumps and one for the turbine driven pump) with a single EFW pump SR 4.7.1.2.d.1. The single SR for EFW pump performance verification is consistent with the STS and is facilitated by the removal of specific pump head and flow values. Consistent with the STS, the proposed surveillance would be required to be performed in accordance with the Inservice Testing Program (as

specified in VCSNS Specification 4.0.5). Also consistent with the STS, specific pump head and flow values are not included in the proposed SR. Rather the proposed SR specifies that the developed head of each EFW pump at the flow test point is greater than or equal to the required developed head.

The proposed new SR contains 2 notes that modify the performance of the SR for the turbine driven EFW pump. The notes contain provisions from the current VCSNS SR that are applicable to the turbine driven EFW pump. One note states that the SR is not required to be performed for the turbine driven pump until the secondary side steam pressure is greater than 865 psig. The second note states the provisions of Specification 4.0.4 are not applicable for the turbine driven emergency feedwater pump.

The proposed SR is consistent with the corresponding STS SR 3.7.5.2 with the exception of the notes that modify the performance of the SR for the turbine driven EFW pump. The proposed notes maintain the current VCSNS licensing basis for the performance testing of the turbine driven EFW pump. As discussed above, this difference from the STS is acceptable to maintain the internal consistency of the VCSNS TS and to provide the required plant specific conditions for testing the turbine driven EFW pump. The STS SR contains a bracketed time limit in the SR note and a subsection in "Use and Application" (Section 1.4, "Frequency") to provide guidance for the use of the time limited SR note. The STS time limit is not adopted in the proposed SR notes because it would be inconsistent with the current Specification 4.0.4 exceptions used in the VCSNS TS to modify the performance of SRs (which do not include a time limit). The adoption of the time limited SR note would require additional guidance (similar to the STS Section 1.4) to establish the use and application of such a note. In addition, it should be noted that the current licensing basis provisions being retained in the proposed SR, although slightly different from the STS, have been demonstrated over time to provide adequate assurance the turbine driven EFW pump performance is confirmed within the required limits and that the turbine driven EFW pump is maintained operable as required by the TS.

The significant difference between the two current separate SRs for pump performance and the proposed single pump performance SR is that the proposed SR relies on the Inservice Testing Program and implementing procedures to specify the frequency and details for testing. The proposed SR references VCSNS Specification 4.0.5 for the Inservice Testing Program. VCSNS Specification 4.0.5 requires that inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with the applicable ASME Code and Addenda as required by 10 CFR 50, Section 50.55a. The ASME Code and Addenda provide the industry standard testing requirements for pumps and valves. Sufficient guidance is provided in the ASME Code to establish required test frequencies and acceptance criteria in the plant's Inservice Testing Program to adequately test pump performance. In the STS, the SRs for pump performance verification rely on the Inservice Testing Program to confirm the pump performance. As discussed in the STS SR Bases, performance of the SR in accordance with the Inservice Testing Program (i.e., the ASME Code and

Addenda requirements) confirms one point on the pump design curve and is indicative of overall performance and will confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. In addition, testing in accordance with the Inservice Testing Program will assure the EFW pumps are tested at the appropriate test interval to adequately verify the required pump head and flow values.

The EFW pump head and flow values will be maintained in the appropriate plant documents and changes to these values will be controlled under the 50.59 process. The 10CFR50.59 process will ensure that any future changes to the EFW pump head or flow values would receive prior NRC review and approval if required.

Therefore, the proposed change, to perform testing in accordance with the Inservice Testing Program, is acceptable because it will continue to provide appropriate requirements (consistent with the industry standard ASME Code) to ensure the EFW system pumps are tested and maintained to support the system design basis requirements.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

South Carolina Electric & Gas Company (SCE&G) has evaluated the proposed changes to the Technical Specifications (TS) using the criteria of 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration. An analysis of the issue of no significant hazards consideration is presented below:

Description of Amendment Request:

The proposed amendment would revise TS 3.7.1.2, "Emergency Feedwater System," Actions to delete an expired allowed outage time and to revise the Surveillance Requirements for the Emergency Feedwater (EFW) pump performance verification to be more consistent with the corresponding requirements in the Standard Technical Specifications (STS) contained in NUREG-1431, Revision 4, "Standard Technical Specifications – Westinghouse Plants."

Basis for proposed no significant hazards consideration determination:

As required by 10 CFR 50.91(a), the SCE&G analysis of the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is presented below.

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change deletes an allowed outage time that is no longer applicable and revises the Surveillance Requirements (SRs) that confirm the Emergency Feedwater (EFW) pump performance to be more consistent with the STS.

The change has been determined not to adversely affect the safe operation of the plant. The affected TS requirements are not initiating conditions for any accident previously evaluated. In addition, changes that are consistent with the STS have been previously evaluated by plants adopting the STS and found not to adversely affect the safe operation of Westinghouse NSSS plants. Based on the conclusions of the plant specific evaluation associated with the change and the evaluations performed in developing the STS, the proposed change does not result in operating conditions that will significantly increase the probability of initiating an analyzed event. The proposed change was also evaluated to assure that it does not alter the safety analysis assumptions relative to mitigation of an accident or transient event and that the resulting TS requirements continue to ensure the necessary equipment is operable consistent with the safety analyses or that the plant is placed in an operating Mode where the system is no longer

required operable. As such the proposed change also does not result in operating conditions that will significantly increase the consequences of an analyzed event.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change includes the deletion of an expired allowed outage time extension and the revision of the SRs that confirm the EFW pump performance to be more consistent with the corresponding STS SR.

Consistent with the STS SR, the proposed change would remove the specific pump head and flow values from the current SRs and require that the SR be performed in accordance with the Inservice Testing Program. The removal of the specific pump head and flow values from the SR is necessary to support the implementation of a plant modification that would change the current EFW pump head and flow values in the SR. The plant modification is being performed under the provisions of 10CFR50.59.

The proposed TS change does not involve a change in the methods governing normal plant operation. The proposed change also does not change any system functions nor does the proposed TS change affect any safety analysis or design basis requirements. The proposed TS change will continue to ensure the EFW System is operable in a similar manner as before. As such, the proposed change does not create new failure modes or mechanisms that are not identifiable during testing, and no new accident precursors are generated.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

Response: No.

The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. The proposed change does not physically alter safety-related systems, nor does it affect the way in which safety related systems perform their functions. The setpoints at which protective actions are initiated are not altered by the proposed change. Therefore, in a similar manner as before, sufficient equipment remains available to actuate upon demand for the purpose of mitigating an analyzed event. The proposed change results in TS requirements that are consistent with

the plant safety analyses. As such, the change does not result in operating conditions that significantly reduce any margin of safety.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based upon the above analysis, SCE&G concludes that the requested change does not involve a significant hazards consideration, as set forth in 10 CFR 50.92(c), "Issuance of Amendment."

5.2 Applicable Regulatory Requirements/Criteria

The regulatory bases and guidance documents associated with the Emergency Feedwater (EFW) System discussed in this amendment application include:

NUREG-1431, Revision 4, "Standard Technical Specifications - Westinghouse Plants," April 2012, as applicable to VCSNS Unit 1.

10 CFR 50.36(c), "Technical specifications," requires Technical Specifications to include items from the following categories:

- (1) Safety limits, limiting safety system settings, and limiting control settings,
- (2) Limiting conditions for operation,
- (3) Surveillance requirements,
- (4) Design features, and
- (5) Administrative controls.

The proposed change is consistent with the applicable requirements in NUREG-1431, Revision 4, "Standard Technical Specifications - Westinghouse Plants." In addition, the proposed change maintains the required Technical Specification content required by 10 CFR 50.36(c), "Technical specifications," consistent with the guidance provided in NUREG-1431.

10 CFR 50.62 requires that pressurized water reactors have equipment diverse from the reactor protection system to initiate the EFW system under conditions indicative of an ATWS. The EFW system is required to assure adequate removal of heat from the reactor coolant system during an ATWS.

The worst common mode failure which is postulated to occur is the failure to scram the reactor after an anticipated transient has occurred. The effects of ATWS events are not considered as part of the design basis for transients analyzed in Chapter 15. The final NRC ATWS rule requires that Westinghouse designed plants install ATWS Mitigation System Actuation Circuitry (AMSAC) to initiate a turbine trip and actuate EFW flow independent of the Reactor Protection System. The V. C. Summer AMSAC design is described in FSAR Section 7.8.

A review of 10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants" and the Regulatory Guides, was performed to assess the potential impact associated

with the proposed change. The General Design Criteria (GDC) and the Regulatory Guides (RG) were evaluated as follows:

GDC-20 requires that the protection system(s) shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

GDC-21 requires that the protection system(s) shall be designed for high functional reliability and testability.

GDC-22 through GDC-25 and GDC-29 require various design attributes for the protection system(s), including independence, safe failure modes, separation from control systems, requirements for reactivity control malfunctions, and protection against anticipated operational occurrences.

GDC 34 requires a system to remove residual heat shall be provided. The system safety function shall be to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary are not exceeded.

Regulatory Guide 1.22 discusses an acceptable method of satisfying GDC-20 and GDC-21 regarding the periodic testing of protection system actuation functions. These periodic tests should duplicate, as closely as practicable, the performance that is required of the actuation devices in the event of an accident.

The proposed change does not alter the EFW System design such that compliance with the General Design Criteria or Regulatory Guidance discussed above is impacted. This review confirms that the plant will continue to comply with these General Design Criteria and Regulatory Guidance.

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

5.3 Design Bases (FSAR)

FSAR Section 10.4.9, "Emergency Feedwater System"

The VCSNS FSAR is unaffected by the proposed TS changes.

5.4 Approved Methodologies

The proposed changes do not result in a change to any methodologies.

5.5 Analysis

The proposed changes do not result in a change to any analysis.

5.6 Conclusion

The proposed change partially incorporates requirements from TS 3.7.5 in NUREG-1431, Revision 4, "Standard Technical Specifications - Westinghouse Plants," as applicable to VCSNS Unit 1 into the current VCSNS EFW TS. The proposed change does not impact the VCSNS compliance with any regulatory guidance, nor does it impact the system design basis, applicable safety analyses, or safety analysis methodologies described in the FSAR.

6.0 ENVIRONMENTAL CONSIDERATION

SCE&G has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10CFR20, or would change an inspection or surveillance requirement. SCE&G has evaluated the proposed changes and has determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. As discussed above, the proposed changes do not involve a significant hazards consideration. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10CFR51, specifically 10CFR51.22(c)(9). Therefore, pursuant 10CFR51.22(b), an environmental assessment of the proposed changes is not required.

7.0 REFERENCES

1. NUREG-1431, Revision 4, "Standard Technical Specifications - Westinghouse Plants," April 2012
2. NUREG-0452, Revision 4, "Standard Technical Specifications (STS) Pressurized Water Reactors," Fall 1981
3. NRC Letter, "Virgil C. Summer Nuclear Station, Unit No. 1 - Issuance of Exigent Amendment Regarding Technical Specification 3.7.1.2 (CAC No. MF7397)," dated March 9, 2016

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VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATION CHANGE (MARK-UP)

PLANT SYSTEMS

EMERGENCY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator emergency feedwater pumps and flow paths shall be OPERABLE with:

- a. Two motor-driven emergency feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One steam turbine driven emergency feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one emergency feedwater pump inoperable, restore the required emergency feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two emergency feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three emergency feedwater pumps inoperable, immediately initiate corrective action to restore at least one emergency feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each emergency feedwater pump shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. ~~Verifying that each motor driven pump develops a total head of greater than or equal to 3800 feet at greater than or equal to 90 gpm flow.~~
 2. ~~Verifying that the steam turbine driven pump develops a total head of greater than or equal to 3140 feet at a flow of greater than or equal to 97 gpm when the secondary steam supply pressure is greater than 865 psig. The provisions of Specification 4.0.4 are not applicable.~~
 3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.


Not used.

~~* The ACTION to be in at least HOT STANDBY in 6 hours is extended to 24 hours to test (and perform remedial maintenance on) the motor driven emergency feedwater pump flow control valves per surveillance requirement 4.7.1.2.c.2. This extension expires on March 18, 2016.~~

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying that each automatic valve in the flow path from the condensate storage tank to the steam generators is in the fully open position whenever the emergency feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER.
5. Verifying that valves 1010-EF and 1007-EF are locked in the open position.
- b. At least once per 3 months by verifying that the check valve in the instrument air supply line to the six emergency feedwater control valve air accumulators closes when the normal instrument air supply is not available.
- c. At least once per 18 months during shutdown by verifying that:
 1. Each emergency feed pump starts as designed automatically upon receipt of an emergency feedwater actuation test signal.
 2. The six emergency feedwater control valves can be closed and held closed for three hours with air from the accumulators when the normal instrument air supply is not available.
 3. The turbine driven emergency feedwater pump can be manually stopped from the main control board by closing the steam supply valve with air from the accumulator when the normal instrument air supply is not available.
 4. Each automatic valve in the flow path actuates to its correct position on receipt of an emergency feedwater actuation test signal.

- 
- d. In accordance with the Inservice Testing Program as required by Specification 4.0.5 by verifying:
1. The developed head of each emergency feedwater pump at the flow test point is greater than or equal to the required developed head. Notes: 1) Not required to be performed for the turbine driven emergency feedwater pump until secondary steam supply pressure is greater than 865 psig.
 - 2) The provisions of Specification 4.0.4 are not applicable for the turbine driven emergency feedwater pump.

VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATION CHANGE (RETYPE)

Replace the following pages of the 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 Pages

3/4 7-4
3/4 7-5

Insert Pages

3/4 7-4
3/4 7-5

PLANT SYSTEMS

EMERGENCY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator emergency feedwater pumps and flow paths shall be OPERABLE with:

- a. Two motor-driven emergency feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One steam turbine driven emergency feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one emergency feedwater pump inoperable, restore the required emergency feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two emergency feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three emergency feedwater pumps inoperable, immediately initiate corrective action to restore at least one emergency feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each emergency feedwater pump shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Not used
 2. Not used
 3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying that each automatic valve in the flow path from the condensate storage tank to the steam generators is in the fully open position whenever the emergency feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER.
5. Verifying that valves 1010-EF and 1007-EF are locked in the open position.
- b. At least once per 3 months by verifying that the check valve in the instrument air supply line to the six emergency feedwater control valve air accumulators closes when the normal instrument air supply is not available.
- c. At least once per 18 months during shutdown by verifying that:
 1. Each emergency feed pump starts as designed automatically upon receipt of an emergency feedwater actuation test signal.
 2. The six emergency feedwater control valves can be closed and held closed for three hours with air from the accumulators when the normal instrument air supply is not available.
 3. The turbine driven emergency feedwater pump can be manually stopped from the main control board by closing the steam supply valve with air from the accumulator when the normal instrument air supply is not available.
 4. Each automatic valve in the flow path actuates to its correct position on receipt of an emergency feedwater actuation test signal.
- d. In accordance with the Inservice Testing Program as required by Specification 4.0.5 by verifying:
 1. The developed head of each emergency feedwater pump at the flow test point is greater than or equal to the required developed head. Notes:
1) Not required to be performed for the turbine driven emergency feedwater pump until secondary steam supply pressure is greater than 865 psig. 2) The provisions of Specification 4.0.4 are not applicable for the turbine driven emergency feedwater pump.