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

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Docket No. 50-395
License No. NPF-12

DOMINION ENERGY SOUTH CAROLINA (DESC)
VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1
TECHNICAL SPECIFICATION BASES CHANGES
UPDATED THROUGH NOVEMBER 2021

In accordance with Virgil C. Summer Nuclear Station (VCSNS) Unit 1 Technical Specifications (TS) 6.8.4.i.4, Dominion Energy South Carolina (DESC), acting for itself and as agent for South Carolina Public Service Authority, submits changes to the TS Bases.

This update includes changes to the TS Bases since the previous submittal in December, 2020. The enclosed changes were revised by License Amendment 218. Changes are annotated by vertical revision bars and the amendment 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,

Robin R. Haselden
Director, Nuclear Station Safety and Licensing
V.C. Summer Nuclear Station

Commitments contained in this letter: None

Enclosure 1: Summary of TS Bases Changes Through November 2021
Enclosure 2: Technical Specification Bases Changes Updated Through November 2021

cc: G. J. Lindamood – Santee Cooper
L. Dudes – NRC Region II
G.E. Miller – NRC Project Manager
NRC Resident Inspector

Enclosure 1

Summary of TS Bases Changes Through November 2021

Virgil C. Summer Nuclear Station (VCSNS) Unit 1
Dominion Energy South Carolina, Inc. (DESC)

SUMMARY OF BASES CHANGES

License Amendment No. 218

Description of Change:

The term "barrier" as used in the TS 3.6.4 Action statements is described in the revised TS 3.6.4 Bases to be synonymous with either an isolation valve, blind flange, or a closed system that is associated with containment penetrations that conform to GDC 57 applications for closed system isolation valves. In addition to reflecting the proposed changes to the TS, the TS 3.6.4 Bases were revised for clarity and consistency.

Reason and Basis for Change:

The Technical Specification Bases for TS 3/4.6.4 Bases were revised with the issuance of License Amendment 218. License Amendment 218 revised the licensing basis action statements associated with TS Limiting Condition for Operation (LCO) 3.6.4, "Containment Isolation Valves". Specifically, the amendment replaced the term "valve" with the term "barrier" in the LCO Action statement and modified 3.6.4.b and c to specify the penetration "flow path" rather than "penetration." This would encompass all components providing the containment isolation function and to specify that the actions to address an inoperable containment isolation valve apply to the affected penetration flow path only rather than all flow paths associated with the penetration.

Enclosure 2

Technical Specification Bases Changes
Updated Through November 2021

Virgil C. Summer Nuclear Station (VCSNS) Unit 1
Dominion Energy South Carolina, Inc. (DESC)

TECHNICAL SPECIFICATION BASES CHANGES
UPDATED THROUGH NOVEMBER 2021

Amendment #	Pages Affected
218	B3/4 6-5

opening of valves XVB-3107A(B)-SW, the air in the piping will act as a cushion to minimize any water hammer affects that could occur downstream of XVB-3107A(B)-SW. The opening logic of valves XVB-3107A(B)-SW has a delayed opening after valve 3106A(B)-SW begins to open. The delay allows fluid flow momentum to build to assure that additional void formation in the RBCU piping inside containment will not occur during swap over to the SW system.

To minimize the effects of the second water hammer scenario XVB-3107A(B)-SW, fast closing air operated butterfly valves, close in seven seconds upon de-energizing of the SWBPs. During times that the RBCUs are aligned with the SW system, if a LOOP were to occur, the fast valve closure will trap water in the high points above the valve and prevent void formation due to gravity drain down of the water to the SW pond. Interface logic is provided to equipment controls that tie the start of the respective SWBP to the closed position of the respective valve XVB-3107A(B)-SW. The controls prevent a SWBP start if the respective valve XVB-3107A(B)-SW failed to fully close allowing drain down of the water to the SW Pond.

The accident analysis requires the service water booster pump to be passing 2,000 gpm to each selected RBCU within 86.5 seconds. This time encompasses the driving of all necessary service water valves to the correct positions, i.e., fully opened or fully closed. Reference Technical Specification Bases B 3/4.3.1 and B 3/4.3.2 for additional details.

3/4.6.3 PARTICULATE IODINE CLEANUP SYSTEM

The OPERABILITY of the containment filter trains ensures that sufficient iodine removal capability will be available in the event of a LOCA. The reduction in containment iodine inventory reduces the resulting site boundary radiation doses associated with containment leakage. The operation of this system and resultant iodine removal capacity are consistent with the assumptions used in the LOCA analyses.

3/4.6.4 CONTAINMENT ISOLATION VALVES

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetration flow paths not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. These isolation barriers are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position, blind flanges, and closed systems are considered passive isolation barriers. Automatic valves designed to close without operator action following an accident are considered active isolation barriers. Two barriers in series are provided for each penetration flow path so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. An inoperable valve may be used to isolate the affected penetration flow path per TS 3.6.4.b/c if the valve is in the closed position (i.e. failed closed or stuck closed) and has power removed, if so equipped.

The OPERABILITY of the containment isolation valves ensures that the reactor building atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the reactor building atmosphere or pressurization of the reactor building and is consistent with the requirements of GDC 54 through 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits required by the safety analysis for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves.

3/4.6.5 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within the reactor building below its flammable limit during post-LOCA conditions. Either recombiner unit (or the purge system) is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water, and 3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

The hydrogen mixing systems are provided to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.