



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

SAFETY EVALUATION BY THE OFFICE OF NEW REACTORS

RELATED TO AMENDMENT NOS. 125 AND 124

TO THE COMBINED LICENSE NOS. NPF-91 AND NPF-92, RESPECTIVELY

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MEAG POWER SPVM, LLC

MEAG POWER SPVJ, LLC

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VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4

DOCKET NOS. 52-025 AND 52-026

1.0 INTRODUCTION

By letter dated November 30, 2017, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17334B211), and supplemented by letter dated March 16, 2018 (ADAMS Accession No. ML18075A438), the Southern Nuclear Operating Company (SNC) requested that the Nuclear Regulatory Commission (NRC) amend Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Combined License (COL) Numbers NPF-91 and NPF-92, respectively. License Amendment Request (LAR) 17-042 requested changes that would allow editorial changes to promote consistency within the information presented in the COL, COL Appendix C (and corresponding plant-specific Tier 1), and the Updated Final Safety Analysis Report (UFSAR).

Pursuant to 52.63(b)(1) of Title 10 of the *Code of Federal Regulations* (10 CFR), SNC also requested an exemption from the elements of the design as certified, in the 10 CFR Part 52, Appendix D, "Design Certification Rule for the AP1000 Design," Section III.B," Scope and Content." The requested exemption would allow departures from the corresponding portions of the certified information in Tier 1 of the generic Design Control Document (DCD).<sup>1</sup>

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<sup>1</sup> While the licensee describes the requested exemption as being from Section III.B of 10 CFR Part 52, Appendix D, the entirety of the exemption pertains to proposed departures from Tier 1 information in the generic design document (DCD). In the remainder of this evaluation, the NRC will refer to the exemption as an exemption from Tier 1 information to match language of Section VIII.A.4 of 10 CFR Part 52, Appendix D, which specifically governs the granting of exemptions from Tier 1 information.

In order to modify the UFSAR (the plant-specific DCD) Tier 1 information, the NRC must find the licensee's exemption request included in its submittal for the LAR to be acceptable. The staff's review of the exemption request, as well as the LAR, is included in this safety evaluation.

On February 27, 2018, the NRC staff published a proposed no significant hazards consideration (NSHC) determination in the *Federal Register* (83 FR 8519) for the proposed amendment. Subsequently, by letter dated March 16, 2018, SNC provided additional information that expanded the scope of the amendment request as originally noticed in the *Federal Register*. Accordingly, the NRC published a second proposed NSHC determination in the *Federal Register* on March 30, 2018 (83 FR 13796), which superseded the original notice in its entirety.

## 2.0 REGULATORY EVALUATION

The proposed changes are related to changes to the COL, plant specific Tier 2 and Tier 2\* in the UFSAR and COL Appendix C (and corresponding changes to plant-specific DCD Tier 1). These changes are proposed to maintain consistency between the UFSAR and the COL Appendix C design descriptions, tables and figures, and to propose editorial clarifications. No structure, system or component (SSC) design function or analysis as described in the UFSAR is affected. These changes are discussed in detail in Section 3.1 of this safety evaluation.

The NRC staff considered the following regulatory requirements in reviewing the LAR that included the proposed changes.

Appendix D, Section VIII.A.4 to 10 CFR Part 52 states that exemptions from Tier 1 information are governed by the requirements in 10 CFR 52.63(b)(1) and 10 CFR 52.98(f). It also states that the Commission will deny such a request if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design.

Appendix D, Section VIII.B.5.a allows an applicant or licensee who references this appendix to depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2\* information, or the Technical Specifications, or requires a license amendment under paragraphs B.5.b or B.5.c of the section

10 CFR 50.36, Technical specifications (TS) impose limits, operating conditions, and other requirements upon reactor facility operation for the public health and safety. The TS are derived from the analyses and evaluations in the safety analysis report. In general, TS must contain: (1) safety limits and limiting safety system settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls.

10 CFR 52.63(b)(1) allows the licensee who references a design certification rule to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it determines that the exemption will comply with the requirements of 10 CFR 52.7, which, in turn, points to the requirements listed in 10 CFR 50.12 for specific exemptions. In addition to the factors listed in 10 CFR 52.7, the Commission shall consider whether the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 52.7, and 52.63(b)(1).

10 CFR 52.98(f) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a COL. LAR 17-042 requests a change to COL Appendix C

Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) information, with corresponding changes to the associated PS-DCD Tier 1 information. Therefore, NRC approval is required prior to making the plant specific proposed changes in this license amendment request.

### 3.0 TECHNICAL EVALUATION

#### 3.1.1 PROPOSED CHANGES

In LAR 17-042, the licensee proposed changes to the UFSAR in the form of departures from the incorporated plant-specific DCD Tier 2\* and Tier 2 information, changes to the VEGP Units 3 and 4 COL Appendix C (and corresponding plant-specific DCD Tier 1) information and changes to the COL. The changes are discussed below.

##### 1. Personnel Hatch and Radiation Monitor Elevation Discrepancies

Upper personnel hatch (CNS-MY-Y03) and lower personnel hatch (CNS-MY-Y04) are provided to allow personnel to enter containment at the 135'-3" and the 107'-2" elevations, respectively. To monitor radiation and limit radioactive release outside of containment, radiation monitors are provided inside the personnel hatches. The upper personnel hatch contains radiation monitor RMS-RE009 and the lower personnel hatch contains radiation monitor RMS-RE021.

COL Appendix C and the UFSAR inconsistently list the design details related to the personnel hatches and radiation monitoring equipment inside the hatches. First, it was identified that COL Appendix C Table 2.2.1-1, UFSAR Table 3.2-3, and UFSAR Table 6.2.3-1 reference personnel hatches leading into containment, without clarification of which hatch is referenced (upper or lower). SNC proposed a clarification change to clearly differentiate between the upper personnel hatch (CNS-MY-Y03) and the lower personnel hatch (CNS-MY-Y04) in the three tables listed above. This change is consistent with the elevations for the hatches presented in UFSAR Table 3.2-3, which indicates that CNS-MY-Y03 is the tag number of the upper personnel hatch and CNS-MY-Y04 is the tag number of the lower personnel hatch. Additionally, SNC seeks to revise COL Appendix C Table 3.5-5 and UFSAR Table 11.5-2 to differentiate between the upper and lower personnel hatches, and to remove the elevations of both hatches, since the elevations in the tables are no longer needed to distinguish between the hatches.

Second, LAR 17-042 states that SNC identified that the elevations of each of the personnel hatches and associated radiation monitors are inconsistently listed in COL Appendix C Figure 2.2.1-1. The upper hatch is located at an elevation of 135'-3" and the lower hatch is located at an elevation of 107'-2", as indicated in UFSAR Figure 1.2-7, Figure 1.2-10, and Table 3.2-3. Therefore, SNC is proposing to revise COL Appendix C Figure 2.2.1-1 to correct the hatch elevations.

Additionally, SNC proposed an editorial change to COL Appendix C Figure 2.2.1-1. This figure identifies that the lower personnel hatch (CNS-MY-Y04) has a penetration tag number of H04 and the upper personnel hatch (CNS-MY-Y03) has a penetration tag number of H03. SNC proposed to switch the personnel hatch numbers (H03 and H04) for these personnel hatches, so that the upper hatch corresponds to penetration tag number H04 and the lower hatch corresponds to penetration tag number H03. LAR 17-042 states that this is a purely editorial change which does not affect a design function related to the upper or lower containment penetrations at the personnel hatches. ITAAC related to the personnel hatches remain unaffected by this change because the personnel hatch tag numbers in the figure are not impacted by this change.

## 2. Protection and Safety Monitoring Class 1E Display Discrepancies

The protection and safety monitoring system (PMS) provides safety-related display information for those important variables and components in the reactor coolant system (RCS), the secondary heat removal system, the containment, and the systems used for attaining a safe shutdown condition. Additionally, the post-accident monitoring instrumentation system (PAMS) provides the capability to monitor plant variables and system operating status during and following an accident. The qualified data processing system (QDPS) of the PMS provides data to support the safety-related display of selected parameters in the control room.

According to SNC, information that is included as part of the PMS safety-related displays is, in some cases, inconsistently listed throughout the licensing basis. Therefore, in LAR 17-042, SNC proposes the following changes.

COL Appendix C Table 2.2.5-1 indicates that Valves VES-PL-V005A/B and VES-PL-V022A/B are not included as part of the PMS safety-related displays. However, these valves are Class 1E components that have component position feedback status on the safety displays as required for PAMS. This information is reflected in UFSAR Table 3.9-16, which indicates that each of these valves has remote position indication. Additionally, UFSAR Tables 3.11-1 and 7.5-1 list a "PAMS" function for these valves, with QDPS indication provided. The "PAMS" function refers to those components which provide the capability to monitor plant variables and system operating status during and following an accident. Therefore, SNC is proposing to update COL Appendix C Table 2.2.5-1 to show the valves as included with the PMS safety-related displays.

COL Appendix C Table 2.6.1-1 indicates that the reactor coolant pump (RCP) circuit breakers (ECS-ES-31/-32/-41/-42/-51/-52/-61/-62) are not included as part of the PMS safety-related displays. The RCP circuit breakers are Class 1E components which have a position feedback status as required for PAMS. The breakers are shown as part of the PMS safety-related displays in COL Appendix C Table 2.1.2-3. Additionally, the circuit breakers are listed with PAMS functionality and QDPS indication provided as identified in UFSAR Tables 3.11-1 and 7.5-1. Therefore, SNC is proposing to update COL Appendix C Table 2.6.1-1 to show the RCP circuit breakers as included with the PMS safety-related displays.

The main control room (MCR) supply air radiation monitoring Packages A and B each consist of a particulate detector, an iodine detector, and a gaseous radiation detector. COL Appendix C Table 3.5-1 and UFSAR Table 7.5-1 list the MCR supply air radiation monitoring packages as not being included as part of the PAMS displays. The MCR radiation monitors are included as part of the Class 1E QDPS, as required for PAMS. The MCR supply air radiation monitors are shown as PAMS components in UFSAR Table 3.11-1 and are discussed as being part of the Class 1E displays in UFSAR Subsection 11.5.2.3.1 and in UFSAR Figure 11.5-6. Therefore, SNC is proposing to update COL Appendix C Table 3.5-1 and UFSAR Table 7.5-1 to show MCR supply air radiation monitoring Packages A and B as having QDPS indication.

Additionally, COL Appendix C Table 2.1.2-1 identifies RCS components which are designed and constructed in accordance with American Society of Mechanical Engineers (ASME) Code Section III requirements. Safety-related displays identified in Table 2.1.2-1 can be retrieved in the MCR. Three components, as described below, are currently shown in Table 2.1.2-1 as not being included as part of the PMS safety-related displays.

- a) RCP bearing water temperature sensors (RCS-TE211A/B/C/D, RCS-TE212A/B/C/D, RCS-TE213A/B/C/D, and RCS-TE214A/B/C/D)

The RCP bearing water temperature sensors are listed as part of the safety-related displays in UFSAR Subsection 5.2.5.6 and UFSAR Table 7.5-1, therefore, SNC proposes a consistency change to Table 2.1.2-1 to include these components.

- b) RCP speed sensors (RCS-ST281, RCS-ST282, RCS-ST283, and RCS-ST284)

These channels are used as inputs into the PMS to initiate a reactor trip on low RCS flow to preclude a departure from nucleate boiling in the core. This information is used to determine the safety status of the plant and, therefore, it is required to be on the safety-related displays. As such, SNC proposes a change to Table 2.1.2-1 to list these components as having a safety-related display.

- c) RCS hot leg flow sensors (RCS-FT101A/B/C/D and RCS-FT102A/B/C/D)

These channels are used as inputs into the PMS to initiate a reactor trip on low RCP speed to preclude a departure from nucleate boiling in the core. This information is used to determine the safety status of the plant and, therefore, it is required to be on the safety-related displays. As such, SNC proposes a change to Table 2.1.2-1 to list these components as having a safety-related display.

SNC states that the changes described above are consistency changes. As discussed in UFSAR Subsection 7.1.2.12, safety-related display instrumentation provides the operator with information to determine the effect of automatic and manual actions taken following reactor trip due to a Condition II, III, or IV event as defined in UFSAR Chapter 15. The RCP speed sensors and RCS hot leg flow sensors are used as inputs to initiate a trip on low RCP speed and low RCS flow, respectively, as discussed in the safety analyses, and can be used to assess the effect of operator actions following the events described in the safety analyses. Additionally, PMS functional diagrams for RCP speed sensors and the RCS hot leg flow sensors designate that the valve position indicators have qualified indication (QI) outputs. A QI point is used when the functional designer determines the signal should be available on the safety displays based upon consideration of plant operations during all operating modes, process variable inputs to the protection system, and internally calculated variables that provide useful information to the operator concerning the status of the plant.

### 3. Relief Valve (CVS-PL-V058) Inconsistency

Chemical and volume control system (CVS) relief valve CVS-PL-V058 protects the containment boundary between the inboard and outboard containment isolation valves on the CVS letdown line from thermal overpressurization. This valve relieves bottled fluid to the containment floor when the setpoint is reached.

According to LAR 17-024, this valve is included in COL Appendix C Figure 2.2.1-1 and Table 2.3.2-1 and in UFSAR Table 3.2-3 and Figure 9.3.6-1 but it was not included in the depiction of the CVS in COL Appendix C Figure 2.3.2-1. Therefore, SNC proposes to add this valve to COL Appendix C Figure 2.3.3-1 for consistency with other Figures and Tables in COL Appendix C and the UFSAR.

#### 4. Code Case N-122-2 Title Discrepancy

According to LAR 17-042, UFSAR Table 5.2-3 contains a list of the ASME code cases which are used in the AP1000 design. Code Case N-122-2 is listed in this table with a title of “Stress Indices for Integral Structural Attachments Section III, Division 1, Class 1.” However, the actual title of Code Case N-122-2 is “Procedure for Evaluation of the Design of Rectangular Cross Section Attachments on Class 1 Piping Section III, Division 1.” Therefore, SNC is proposing to make an editorial change to the title of Code Case N-122-2 listed in UFSAR Table 5.2-3.

#### 5. Tie Bar Yield Strength Change

The shield building is the structure and annulus area that surrounds the containment building. It shares a common basemat with the containment building and the auxiliary building. The shield building uses concrete-filled steel plate construction as well as reinforced concrete structure. The AP1000 design uses American Concrete Institute (ACI) Standard 349-01 as the applicable code for reinforced concrete design, as discussed in UFSAR Appendix A, Regulatory Guide (RG) 1.142 and throughout UFSAR Section 3.8. The shield building concrete-filled steel plate walls are anchored to the basemat and shield building concrete composite wall by mechanical connections, and these connections are discussed in a Tier 2\* incorporated by reference (IBR'd) document, APP-GW-GLR-602 (proprietary version) and APP-GW-GLR-603 (non-proprietary version) (ADAMS Accession Number ML110910541).

According to LAR 17-042, UFSAR Subsection 3.8.4.5.5.5 contains a discrepancy in the discussion of tie bar yield strength. UFSAR Subsection 3.8.4.5.5.5 states that, “the connection between the tie bars and the steel faceplates is designed to develop the full tensile strength of the tie bar.” This text conflicts with the design of the shield building tie bars as discussed in APP-GW-GLR-602/-603, which states that, “tie bars are welded to the steel face plates using a weld detail that will develop 125% of the specified yield of the bar.” SNC’s review of ACI 349-01 indicated that the correct performance requirement of the tie bars is 125% of the specified yield strength of the bar.

SNC is proposing to change UFSAR Subsection 3.8.4.5.5.5 to state that the connection between the tie bar and the steel faceplates is designed to develop 125% of the specified yield strength of the tie bars. This consistency change aligns the design in UFSAR Subsection 3.8.4.5.5.5 with the design in APP-GW-GLR-602/-603. The AP1000 uses industry standards as identified in ACI 349-01 for the design of safety-related concrete structures located outside of containment. According to SNC, this tie bar design meets the design requirements identified in ACI 349-01.

#### 6. Remote Shutdown Workstation Minimum Inventory

LAR 17-042 also states that the MCR and remote shutdown workstation (RSW) include appropriate plant displays, alarms, and controls needed to support a broad range of expected power generation, shutdown, and accident mitigation operations. During certain improbable weather conditions, it is possible for the pressure in the containment building to drop significantly below the outside atmospheric pressure if the containment purge inlet isolation valves are not open. The containment vacuum relief isolation valves can be opened to limit the negative pressure differential that can develop to prevent structural damage to the containment shell. Automatic and manual actuation signals can be used to open the containment vacuum relief isolation valves. Manual containment vacuum relief switches are included in both the MCR and RSW.

Containment vacuum relief switches are included in the minimum inventory of controls for both the MCR and RSW. One containment relief switch is available at each location, and actuation of each switch actuates manual containment vacuum relief. UFSAR Subsection 7.3.1.2.26, Table 7.3-1, Table 7.3-3, and Figure 7.2-1 support this design by discussing the two momentary controls which can be used for manual containment vacuum relief. Additionally, COL Appendix C Table 2.5.2-5 identifies that one of the manual containment vacuum relief switches is included in the MCR minimum inventory of controls.

According to SNC, the description of manual containment vacuum relief switches in the minimum inventory of controls which are included on the RSW is inconsistently listed in the licensing basis. COL Appendix C Table 2.5.4-1 and UFSAR Table 18.12.2-1 do not specifically list the manual containment vacuum relief switch with the minimum inventory of controls that is to be included on the RSW. For consistency with the design as described in UFSAR Chapter 7, SNC is proposing to add the manual containment vacuum relief switches to the description of controls available in the RSW in COL Appendix C Table 2.5.4-1 and UFSAR Table 18.12.2-1.

#### 7. Inconsistent Terminology for RNS Pump Manual Controls

The normal residual heat removal system (RNS) removes both residual and sensible heat from the RCS. The RNS includes two mechanical trains, and each train includes one RNS pump and one RNS heat exchanger located in the auxiliary building. RN Pumps 1A and 1B have controls in the MCR which can be used to manually start the pumps.

According to LAR 17-042, the discussion of RNS pump manual controls within COL Appendix C Section 2.3.6 contains inconsistent terminology. COL Appendix C Table 2.3.6-4 contains discussion of a required "listed action" and "listed function" for the pumps, and this table cross references Table 2.3.6-3 as the location of the "listed action" and "listed function" in the design commitment and acceptance criteria for the ITAAC. However, similar text in Table 2.3.6-3 references a "control function" for the pump.

To enhance reader understanding and provide consistency with COL Appendix C terminology, SNC is proposing to change COL Appendix C Table 2.3.6-4 and Subsection 2.3.6 to replace "listed action" and "listed function" with "control function" for consistency with the description in COL Appendix C Table 2.3.6-3.

#### 8. CVS Piping/Component Tier 1 Inconsistency

The COL Appendix C Table 2.3.2-4, item 14, design commitment and acceptance criteria both reference nonsafety-related CVS piping located inside containment and designed as a reactor coolant pressure boundary. Additionally, the acceptance criteria references Table 2.3.2-2, which includes a list of CVS piping lines and indication of whether they comply with ASME Section III requirements.

COL Appendix C Table 2.3.2-4, item 14, indicates that "inspection will be conducted of the as-built components as documented in the CVS Seismic Analysis Report." According to SNC it is not appropriate to reference as-built components in this section, since this ITAAC intends to verify the design of CVS piping. Therefore, SNC is proposing to change item 14 in COL Appendix C Table 2.3.2-4 to state that "Inspection will be conducted of the as-built piping as documented in the CVS Seismic Analysis Report."

## 9. APP-OCS-GEH-220 Consistency Changes

APP-OCS-GEH-220 “AP1000 Human Factors Engineering Task Support Verification Plan” (and non-proprietary version APP-OCS-GEH-222) is a Tier 2\* document included by reference in UFSAR Subsection 18.11.2. The purpose of this document is to define the human factors engineering (HFE) task support verification plan for the AP1000 plant. Operational sequence analysis (OSA) is one of the main task analysis activities identified in the AP1000 HFE Program Plan. There are two separate parts to the OSA: OSA-1 and OSA-2. OSA-1 focuses on the operational requirements and task demands in terms of the operator actions and/or processes necessary to complete the required AP1000 control and monitoring tasks, abnormal/emergency tasks, and maintenance, testing, surveillance, and inspection tasks for a selection of operator tasks. OSA-2 addresses post-accident risk important human actions.

According to SNC, APP-OCS-GEH-220 contains discrepancies related to the scope of OSA-1 and OSA-2. SNC states that UFSAR Subsections 18.5.2.2, 18.5.2.3, 18.5.2.4, and 18.5.2.5 contain an accurate description of the OSA-1 and OSA-2 verification activities. Therefore, SNC is proposing to change the scope of OSA-1 and OSA-2 as discussed within APP-OCS-GEH-220 for consistency with these UFSAR subsections. This portion of the proposed change is a Tier 2\* change, per the guidance of Note 2 in UFSAR Subsection 18.11.2. Additionally, as a result of this proposed change, APP-OCS-GEH-220 would be updated to Revision 5 in UFSAR Table 1.6-1 and Subsection 18.11.2. This would be a Tier 2 change, per the guidance in UFSAR Subsection 18.11.2; however, this change would be related to the Tier 2\* change discussed above.

## 10. WWS-PL-L851 Description Clarification

Waste water system (WWS) Lines WWS-PL-L808 and WWS-PL-L851 are included in COL Appendix C Table 2.7.1-2 as pipe lines which must be designed to ASME Section III standards to maintain containment isolation functions. Both of these lines are waste water lines which extend through containment and drain into the WWS sumps. However, WWS-PL-L808 has been added to Table 2.7.1-2 as “Main Control Room Waste Water Line,” and WWS-PL-L851 has been added to the table with the line name “Main Control Room Water Line.”

SNC is proposing to change the name of WWS-PL-L851 in COL Appendix C Table 2.7.1-2 to “Main Control Room Waste Water Line” to enhance reader understanding with respect to the design function of WWS-PL-L851 and to provide consistency with the naming of similar piping WWS-PL-L808. This is a clarification change that only changes the title of WWS-PL-L851 in COL Appendix C Table 2.7.1-2.

## 11. Addition of Header to COL Appendix C Table 3.5-5

COL Appendix C Table 3.5-5, “Area Radiation Monitors,” is missing headers within the table for both of its columns. According to SNC, the columns are meant to indicate the “Equipment List” and the “Equipment Number,” consistent with the other tables under COL Appendix C Section 3.5. Therefore, SNC is proposing to add these headers to their respective columns within COL Appendix C Table 3.5-5. This is an editorial change to add appropriate headers to the table.

## 12. References to 10 CFR 52.47

Plant-specific Tier 1 Section 4.0 currently references 10 CFR 52.47(a)(1)(vii) as the appropriate regulation which specifies that interface requirements must be included in an application for design certification. Additionally, plant-specific Tier 1 Section 4.0 references 10 CFR 52.47(a)(1)(viii) as the appropriate regulation which specifies that those interface requirements must be verifiable through inspection, testing, or analysis. In each of the cases above, the plant-specific Tier 1 text references a section of 10 CFR 52.47 which does not exist. SNC proposes to update both of the plant-specific Tier 1 sections above, along with appropriate UFSAR information, to reference the correct 10 CFR 52.47 subsections, which discuss this information.

SNC proposes to change plant-specific Tier 1 Section 4.0 to reference 10 CFR 52.47(a)(25) as the appropriate regulation, which specifies that interface requirements must be included in an application for design certification. SNC also proposes to change plant-specific Tier 1 Section 4.0 to reference 10 CFR 52.47(a)(26) as the appropriate regulation which specifies that those interface requirements must be verifiable through inspection, testing, or analysis. SNC proposes to update conforming UFSAR Sections 1.2, 1.8, 14.3, 14.3.4, and 14.3.5 to reference 10 CFR 52.47(a)(25) instead of 10 CFR 52.47 (a)(1)(iii), 10 CFR 52.47 (a)(1)(vii), 10 CFR 52.47(a)(1)(viii), and 10 CFR 52.47(a)(1)(ix) as the appropriate regulation for interface requirements to be included in an application for design certification. Additionally, SNC proposes updating conforming UFSAR Section 14.3 to reference 10 CFR 52.47(a)(26) as the appropriate regulation which specifies that those interface requirements must be verifiable through inspection, testing, or analysis.

Since Section 4.0 is only contained in plant-specific Tier 1, there would be no corresponding change to COL Appendix C.

## 13. RCS-PL-V010A/B Class 1E Power Discrepancy

The common discharge line for each group of automatic depressurization system (ADS) valves on the pressurizer is equipped with a vacuum breaker to maintain an atmospheric discharge piping pressure following valve discharges, which prevents water from being siphoned into the ADS discharge sparger from the in containment refueling water storage tank (IRWST) as steam in the pipe cools and condenses following valve discharge. The ADS discharge header vacuum relief valves, RCS-PL-V010A/B, prevent a vacuum from forming in ADS discharge piping due to steam condensation and prevent a vacuum formation during RCS draindown operations during plant shutdown. Each valve is designed with a set pressure of -0.5 psig and, therefore, the valves will automatically perform their active function once this pressure setpoint is reached.

As stated in LAR 17-042, Valves RCS-PL-V010A/B are currently listed in COL Appendix C Table 2.1.2-1 as being powered from a Class 1E power source. As discussed in UFSAR Table 3.9-16, the ADS discharge header vacuum relief valves do not require a Class 1E power source to perform the safety-related active function of transferring open. Therefore, SNC proposes changes to COL Appendix C Table 2.1.2-1 to remove the Class 1E designation from ADS discharge header Vacuum relief Valves RCS-PL-V010A/B.

#### 14. Radiation Monitoring Package Tag Number Correction

The MCR radiation monitoring packages are listed as components in COL Appendix C Table 3.5-1 and Table 3.5-7. According to SNC, both tables use a different tag number to identify the radiation monitoring packages. COL Appendix C Table 3.5-1 uses VBS-JS01A/B for the radiation monitoring packages, however, COL Appendix C Table 3.5-7 uses VBS-RY01A/B for the packages. UFSAR Figure 9.4.1-1 (Sheet 5) identifies the monitoring packages with tag number VBS-JS01A/B, therefore, this tag numbering convention will be used for the radiation monitoring packages.

Therefore, SNC is proposing to implement an editorial change to COL Appendix C Table 3.5-7 to reference tag number VBS-JS01A/B as the tag number for the MCR radiation monitoring package A and B, respectively. This change would provide alignment between the radiation monitoring package tag numbers listed in COL Appendix C Table 3.5-1 and Table 3.5-7.

#### 15. VWS Cooling Coil Discrepancy

The central chilled water system (VWS), low capacity subsystem consists of two 100-percent capacity chilled water trains. Each train consists of a chilled water pump; an air-cooled chiller; an expansion tank; a chemical feed tank; and associated valves, piping, instrumentation, and controls. This configuration provides redundancy and independence of trains during the various modes of system operation.

The low capacity VWS supports the defense-in-depth function of providing chilled water to the RNS pump room unit coolers in the event that heat must be rejected from this room. As stated in LAR 17-042, COL Appendix C Figure 2.7.2-1 and UFSAR Figure 9.2.7-1 show the chiller pump VWS-MP-02 as providing water to the RNS pump room unit cooling coil, VAS-MY-C12A, and chiller pump, VWS-MP-03, as providing water to the RNS pump room unit cooling coil, VAS-MY-C12B. SNC proposes reversing and changing the tag numbers of the pump room unit cooling coils because chiller pump, VWS-MP-02, provides water to the RNS pump room unit cooling coil, VAS-MY-C12B, and chiller pump, VWS-MP-03, provides water to the RNS pump room unit cooling coil, VAS-MY-C12A.

Additionally, SNC proposes an editorial change for the tag numbers of components identified in COL Appendix C Figure 2.7.2-1 (Sheets 1 and 2). This figure identifies cooling coils which use a different tag numbering convention than in COL Appendix C Table 2.7.2-2 and in UFSAR Figure 9.2.7-1. SNC is proposing to change the COL Appendix C Figure 2.7.2-1 tag numbers as identified below.

<b>Figure 2.7.2-1 Tag Number</b>	<b>Proposed Change</b>
VBS-MYC-01A/B	VBS-MY-C01A/B
VBS-MYC-02A/B	VBS-MY-C02A/B
VBS-MYC-02C/D	VBS-MY-C02C/D
VAS-MYC-07A/B	VAS-MY-C07A/B
VAS-MYC-12A/B	VAS-MY-C12A/B
VAS-MYC-06A/B	VAS-MY-C06A/B

According to SNC, this editorial change only impacts the tag numbers of the cooling coils and no design features are affected by the changes to the tag numbers.

## 16. COL Appendix C Table 3.2-1 Table Number Editorial Change

According to LAR-17-042, COL Appendix C Table 3.2-1 includes an extra period in the table number in the title bar. The table number is currently listed as “Table 3.2.-1,” instead of “Table 3.2-1.” SNC proposes changing the table number for consistency with the table numbering throughout COL Appendix C.

Since this editorial change in Table 3.2-1 only impacts COL Appendix C, there would be no corresponding change to plant-specific Tier 1.

## 17. COL License Conditions Reference Changes

SNC is proposing to replace references to AP1000 DCD Rev.19 and FSAR in the VEGP Units 3 and 4 COL with references to the UFSAR. Also, some additional non-technical reference changes are proposed as described below.

- SNC proposes to remove language, in License Conditions 2.D(2)(a) and 2.D(12)(b) such as “as revised by Amendment No. ##”, if it is no longer needed. The “Amendment No. ##” in License Condition 2.D(8) and 2D(12)(d) are not revised.
- The reference to FSAR in License Condition 2.F(3)(a) is revised to reference the COL Application due to the discussion on exemptions being in Part 7 of the COL Application, rather than the FSAR.

At the time of issuance of the COL for VEGP Units 3 and 4, NRC distinguished between references to DCD Rev. 19 and the FSAR in the COL since the two documents were not physically integrated. According to SNC, because the two documents are now integrated into a single document, the UFSAR, it is more appropriate to reference the UFSAR within the COL.

### 3.1.2 TECHNICAL EVALUATION OF PROPOSED CHANGES

Based on the staff’s review of the LAR, the staff finds that these changes are proposed to maintain consistency between the UFSAR, COL, and COL Appendix C design descriptions, tables and figures, and to provide clarifications. The editorial and consistency changes enhance a reader’s understanding of the information included in the UFSAR, COL and ITAAC. The proposed changes to replace references to DCD Rev. 19 and the FSAR with references to the UFSAR is acceptable because 10 CFR 52.79(d) requires the UFSAR to either include or incorporate by reference the DCD. Additionally, the UFSAR includes all of the updated information about VEGP Units 3 and 4, including any changes made to the DCD portion of the UFSAR since the issuance of DCD Rev. 19. This reference will make it easier to evaluate departures from the UFSAR or changes to other licensing documents such as the COL. Other editorial changes in the COL are acceptable as they will provide clarity in the document by reducing unnecessary references. No SSC design function or analysis as described in the UFSAR is affected by these changes.

The proposed changes neither affect the ability to meet design criteria or functions, nor involve any technical change related to design, analysis, function, or qualification that would result in a decrease in the safety provided by the associated systems. The proposed changes do not affect any SSC’s function or feature used for the prevention or mitigation of accidents previously evaluated.

The proposed changes do not affect any safety-related equipment design, code limit, safety-related function, safety-related design analysis, safety analysis input or result, or safety margin. No design basis acceptance criterion would be challenged or exceeded.

Because no functional changes are proposed in the LAR and the SSCs will continue to perform their function as described in the UFSAR for both normal and anticipated operational occurrences, the staff finds that there is no reduction in safety as a result of these changes. The staff concludes that there is reasonable assurance that VEGP Units 3 and 4 will continue to meet the design and performance requirements previously reviewed and approved by the NRC staff. Therefore, the proposed changes are acceptable.

### 3.2 EVALUATION OF EXEMPTION

The regulations in Section III.B of Appendix D to 10 CFR Part 52 require a holder of a COL referencing Appendix D to 10 CFR Part 52 to incorporate by reference and comply with the requirements of Appendix D, including certified information in Tier 1 of the generic AP1000 DCD. Exemptions from Tier 1 information are governed by the change process in Section VIII.A.4 of Appendix D of 10 CFR Part 52. Because the licensee has identified changes to plant-specific Tier 1 information, with corresponding changes to the associated COL Appendix C information resulting in the need for a departure, an exemption from the certified design information within plant-specific Tier 1 material is required to implement the LAR.

The Tier 1 information for which a plant-specific departure and exemption was requested relates to inconsistencies that necessitate editorial and consistency changes to plant-specific Tier 1 information. Editorial changes are made to enhance the reader's understanding and consistency changes are made to provide consistency with the underlying design information contained in the UFSAR. Pursuant to the provisions of 10 CFR 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is requested for the involved Tier 1 information described and justified in LAR 17-042. This exemption is a permanent exemption limited in scope to the particular Tier 1 information specified.

As stated in Section VIII.A.4 of Appendix D to 10 CFR Part 52, an exemption from Tier 1 information is governed by the requirements of 10 CFR 52.63(b)(1) and 52.98(f). Additionally, Section VIII.A.4 of Appendix D to 10 CFR Part 52 provides that the Commission will deny a request for an exemption from Tier 1 if it finds that the requested change will result in a significant decrease in the level of safety otherwise provided by the design. Pursuant to 10 CFR 52.63(b)(1), the Commission may grant exemptions from one or more elements of the certification information, so long as the criteria given in 10 CFR 52.7, which, in turn, references 10 CFR 50.12, are met and that the special circumstances, which are defined by 10 CFR 50.12(a)(2), outweigh any potential decrease in safety due to reduced standardization.

Pursuant to 10 CFR 52.7, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 52. As 10 CFR 52.7 further states, the Commission's consideration will be governed by 10 CFR 50.12, "Specific exemptions," which states that an exemption may be granted when: (1) the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security; and (2) special circumstances are present. Specifically, 10 CFR 50.12(a)(2) lists six circumstances for which an exemption may be granted. It is necessary for one of these bases to be present in order for the NRC to

consider granting an exemption request. The licensee stated that the requested exemption meets the special circumstances of 10 CFR 50.12(a)(2)(ii). That subparagraph defines special circumstances as when “[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.” The staff’s analysis of these findings is presented below:

### 3.2.1 AUTHORIZED BY LAW

The requested exemption would allow SNC to implement the amendment described above. This exemption is a permanent exemption limited in scope to particular Tier 1 information. Subsequent changes to this plant-specific Tier 1 information, and corresponding changes to Appendix C, or any other Tier 1 information would be subject to the exemption process specified in Section VIII.A.4 of Appendix D to 10 CFR Part 52 and the requirements of 10 CFR 52.63(b)(1). As stated above, 10 CFR Part 52, Appendix D, Section VIII.A.4 allows the NRC to grant exemptions from one or more elements of the Tier 1 information. The NRC staff has determined that granting of SNC’s proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission’s regulations. Therefore, as required by 10 CFR 50.12(a)(1), the exemption is authorized by law.

### 3.2.2 NO UNDUE RISK TO PUBLIC HEALTH AND SAFETY

As discussed above in the technical evaluation, the proposed amendment and exemption does not change how the plants comply with the NRC’s substantive safety regulations. Therefore there is no undue risk to the public health and safety from granting the exemption.

### 3.2.3 CONSISTENT WITH COMMON DEFENSE AND SECURITY

The proposed exemption would allow changes as described above in the technical evaluation, thereby departing from the AP1000 certified (Tier 1) design information. The change does not alter or impede the design, function, or operation of any plant SSCs associated with the facility’s physical or cyber security and, therefore, does not affect any plant equipment that is necessary to maintain a safe and secure plant status. In addition, the changes have no impact on plant security or safeguards. Therefore, as required by 10 CFR 50.12(a)(1), the staff finds that the common defense and security is not impacted by this exemption.

### 3.2.4 SPECIAL CIRCUMSTANCES

Special circumstances, in accordance with 10 CFR 50.12(a)(2), are present, in part, whenever application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purpose of the Tier 1 information is to ensure that a licensee will safely construct and operate a plant based on the certified information found in the AP1000 DCD, which was incorporated by reference into the VEGP Units 3 and 4 licensing basis. The proposed changes described in the above technical evaluation do not impact the ability of any SSCs to perform their functions or negatively impact safety.

Special circumstances are present in the particular circumstances discussed in LAR 17-042 because the application of the specified Tier 1 information is not necessary to achieve the underlying purpose of the rule. The proposed changes are equal to or provide additional clarity to the existing requirement. The proposed changes do not affect any function or feature used for the prevention and mitigation of accidents or their safety analyses, and no safety-related

SSC or function is involved. This exemption request and associated revisions to the Tier 1 information and corresponding changes to Appendix C demonstrate that the applicable regulatory requirements will continue to be met. Therefore, for the above reasons, the staff finds that the special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from the Tier 1 information exist.

### 3.2.5 SPECIAL CIRCUMSTANCES OUTWEIGH REDUCED STANDARDIZATION

This exemption would allow the implementation of changes to Tier 1 information in the plant-specific DCD and corresponding changes to Appendix C that are being proposed in the LAR. The justification provided in LAR 17-042, the exemption request, and the associated licensing basis mark-ups demonstrate that there is limited change from the standard information provided in the generic AP1000 DCD. The design functions of the system associated with this request will continue to be maintained because the associated revisions to the Tier 1 information support the design function of the information presented in COL Appendix C (and corresponding plant-specific Tier 1) and the UFSAR. Consequently, the safety impact that may result from any reduction in standardization is minimized, because the proposed design change does not result in a reduction in the level of safety. In addition, the proposed changes provide better clarity in the existing the information in COL Appendix C (and corresponding plant-specific Tier 1) and the UFSAR. Based on the foregoing reasons, as required by 10 CFR Part 52.63(b)(1), the staff finds that the special circumstances outweigh any decrease in safety that may result from the reduction of standardization of the AP1000 design.

### 3.2.6 NO SIGNIFICANT REDUCTION IN SAFETY

This exemption would allow the implementation of changes discussed above. The exemption request proposes to depart from the certified design by allowing changes discussed above in the technical evaluation. The changes for consistency will not impact the functional capabilities of any system. The proposed changes will not adversely affect the ability of any system that is affected by this change to perform its design functions, and the level of safety provided by the current systems and equipment therein is unchanged. Therefore, based on the foregoing reasons and as required by 10 CFR 52.7, 10 CFR 52.98(f), and 10 CFR Part 52, Appendix D, Section VIII.A.4, the staff finds that granting the exemption would not result in a significant decrease in the level of safety otherwise provided by the design.

## 4.0 STATE CONSULTATION

In accordance with the Commission's regulations in 10 CFR 50.91(b)(2), on February 28, 2018, the Georgia 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 installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (83 FR 8519, published on February 27, 2018, and 83 FR 13796, published on March 30, 2018).

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.

Because the exemption is necessary to allow the changes proposed in the license amendment, and because the exemption does not authorize any activities other than those proposed in the license amendment, the environmental consideration for the exemption is identical to that of the license amendment. Accordingly, the exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the exemption.

## 6.0 CONCLUSION

The staff has determined that pursuant to Section VIII.A.4 of Appendix D to 10 CFR Part 52, the exemption (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) presents special circumstances, and (5) does not reduce the level of safety at the licensee's facility. Therefore, the Commission grants the licensee an exemption from the Tier 1 information requested by the licensee.

The staff has concluded, based on the considerations discussed in Section 3.1 that there is reasonable assurance that: (1) 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. Therefore, the staff finds the changes proposed in this license amendment acceptable.

## 7.0 REFERENCES

1. Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4, "Request for License Amendment and Exemption: Tier 1 and Tier 2\* Editorial and Consistency Changes (LAR 17-042)," November 30, 2017 (ADAMS Accession No. ML17334B211).
2. Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4, "Supplement to Request for License Amendment and Exemption: Tier 1 and Tier 2\* Editorial and Consistency Changes (LAR-17-042S1)," March 16, 2018, (ADAMS Accession No. ML18075A438).
3. Vogtle Units 3 and 4 Updated Final Safety Analysis Report, Revision 6 and Tier 1, Revision 5, March 12, 2017 (ADAMS Accession No. ML17172A218).
4. AP1000 Design Control Document, Revision 19, June 13, 2011 (ADAMS Accession No. ML11171A500).
5. Combined License NPF-91 for Vogtle Electric Generating Plant Unit 3, Southern Nuclear Operating Company (ADAMS Accession No. ML14100A106).

6. Combined License NPF-92 for Vogtle Electric Generating Plant Unit 4, Southern Nuclear Operating Company (ADAMS Accession No. ML14100A135).