

Vogle PEmails

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Cc: Rankin, Jennivine
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Attachments: SNC LAR for PCS Wetted Perimeter Test Modification DRAFT.pdf

Draft LAR for Vogle 3 and 4

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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Request for License Amendment and Exemption:
PCS Wetted Perimeter Test Modification (LAR-19-XXX)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests an amendment to Combined License Numbers NPF-91 and NPF-92, for VEGP Units 3 and 4, respectively. The requested amendment proposes changes to the VEGP Unit 3 and Unit 4 COL Appendix C, with corresponding changes to the associated plant specific Tier 1 information, and involves associated Tier 2 information in the Updated Final Safety Analysis Report (UFSAR) (which includes the plant specific DCD Tier 2 information. 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 also requested for the plant-specific Tier 1 material departures.

This License Amendment Request (LAR) proposes to modify Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) regarding the performance of the Passive Containment Cooling System (PCS) Wetted Perimeter Test. Specifically, SNC has determined that performing the test at the current spring line location causes difficulties with the installation of the PCS air baffles. To correct this condition, SNC proposes to revise COL Appendix C (and plant-specific Tier 1 information) and involved Tier 2 information to perform the test above the baffle spring line.

Enclosure 1 provides the description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration Determination), and environmental considerations for the proposed change.

Enclosure 2 provides the background and supporting basis for the requested exemption.

Enclosure 3 provides the proposed changes to the VEGP Unit 3 and Unit 4 licensing basis documents.

The Enclosures to this letter have been reviewed and confirmed to not contain security-related information. This letter contains no regulatory commitments.

SNC requests staff approval of this license amendment by March 31, 2020 to support preparation of the test procedure and closure of VEGP Units 3 and 4 ITAAC. Approval by this date will allow sufficient time to implement the licensing basis changes prior to the associated ITAAC activity. SNC expects to implement this proposed amendment (through incorporation into the licensing basis documents) within 30 days of approval of the requested changes.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this LAR by transmitting a copy of this letter and enclosures to the designated State Official.

Should you have any questions, please contact Mr. Steve Leighty at (706) 848-6790.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the **day of September 2019.**

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Michael J. Yox
Regulatory Affairs Director
Vogtle 3 & 4

MJY/SMU/sfr

- Enclosures: 1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Request for License Amendment: PCS Wetted Perimeter Test Modification (LAR-19-**XXX**)
- 2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Exemption Request: PCS Wetted Perimeter Test Modification (LAR-19-**XXX**)
- 3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Proposed Changes to the Licensing Basis Documents (LAR-19-**XXX**)

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ND-19-0xxx

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment:

PCS Wetted Perimeter Test Modification

(LAR-19-XXX)

(Enclosure 1 consists of **10** pages, including this cover page.)

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Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC, or "Licensee") hereby requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

1. SUMMARY DESCRIPTION

The requested amendment proposes changes to COL Appendix C information, with corresponding changes to plant-specific DCD Tier 1 information and involved Updated Final Safety Analysis Report (UFSAR/plant specific DCD) information, as appropriate. The proposed change is to update the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Containment Vessel (CV) wetted perimeter measurement to be taken at any elevation between the 266 ft. elevation and the spring line instead of the current requirement of taking the measurement directly at the spring line (approximate elevation of 244 ft.). This enclosure requests approval of a license amendment necessary to implement the COL Appendix C and involved UFSAR changes described below. Enclosure 2 requests the exemption necessary to implement the changes to the plant-specific DCD Tier 1 information.

2. DETAILED DESCRIPTION and TECHNICAL EVALUATION

Detailed Description

As described in Update Final Safety Analysis Report (UFSAR) Subsection 6.2.2, the passive containment cooling system (PCS) is an engineered safety features (ESF) system. The PCS performs the following safety-related functions:

- a) The PCS delivers water from the passive containment cooling water storage tank (PCCWST) to the outside, top of the CV.
- b) The PCS wets the outside surface of the CV.

The functional objective is to reduce the containment temperature and pressure following a loss of coolant accident (LOCA) or a main steam line break (MSLB) accident inside the containment by removing thermal energy from the containment atmosphere. The passive containment cooling system also serves as the means of transferring heat to the safety-related ultimate heat sink for other events resulting in a significant increase in containment pressure and temperature.

Operation of the PCS is automatically initiated upon receipt of two out of four High-2 containment pressure signals. When the actuation signal is received, the PCCWST isolation valves open. This allows cooling water to be delivered to the top, external surface of the steel containment shell. This flow of water, provided entirely by the force of gravity, forms a water film over the dome and side walls of the containment structure. To adequately wet the containment surface, the water is delivered to a distribution bucket above the center of the containment dome which then delivers the water onto the containment surface. A weir-type water distribution system is used on the dome surface to distribute the water for effective wetting of the dome and vertical sides of the containment shell.

As described in UFSAR Subsection 6.2.2.4.2, preoperational testing of the PCS includes

a containment water coverage test. The containment coverage is measured at the base of the upper annulus in addition to measuring coverage at the spring line for the full flow case and a lower flow case using the PCCWST to deliver cooling water to the containment shell.

UFSAR Subsection 14.2.9.1.4 describes how the flow testing is to be performed. This includes item d) “[...] Water delivery and coverage is verified at the initial minimum water level and as each of the first two standpipes is uncovered. Water coverage is measured at the spring line and the base of the upper annulus as described in Subsection 6.2.2.4.2.”

Combined License Appendix C (COL Appendix C) Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.2.02.07b.i) (Index Number 138) requires the PCS flow test be performed and requires the containment shell coverage to be measured at the spring line.

Currently, the air baffle panels (also PCS components) are located at an elevation above the spring line, which causes construction and testing difficulties. If the water coverage measurement location is adjusted to above the spring line, the air baffle installation and subsequent PCS wetted coverage test can be decoupled and neither will be impacted by the other activity. Additionally, the current WGOTHIC evaluation model wetted coverage assumptions more closely align with a coverage measurement location between elevation 266 ft. and the spring line. The model is not limited to strictly measuring the wetted coverage at the spring line.

COL Appendix C ITAAC is proposed to be modified to allow the containment vessel wetted perimeter measurement to be taken at any elevation between the 266 ft. elevation and the spring line. In addition, other involved UFSAR sections that reference the measurement location as being taken at the spring line will be adjusted to reference the measurement being performed in this range.

In support of the proposed change to the ITAAC, UFSAR Table 3.9-17, System Level Operability Test Requirements, Note 1 is proposed to be reworded to clarify that air baffle panels may be removed if needed to perform the test. Note 1 retains the requirement to observe the water coverage at four locations, approximately 90 degrees apart.

Technical Evaluation

The design basis accident (DBA) containment analyses are performed using the WGOTHIC computer code in accordance with the WGOTHIC methodology described in UFSAR Subsection 6.2.1.1.3 and WCAP-15846, Revision 5. Starting at elevation 266 ft., it is assumed there is at least 90% of the perimeter wetted. From the 266 ft. elevation and up, there is an assumed maximum wetted coverage of 56%. The 56% versus 90% coverage relates to the location of the upper weirs, approximate elevation 279.5 ft. and the location of the lower weirs, approximate elevation 269.25 ft. The ITAAC proposed change is consistent with the elevations and modeling of the AP1000 WGOTHIC containment model. The 90 percent coverage is equivalent to a 220 gpm PCS water flow rate as discussed in WCAP-15846. The minimum allowable flow rate with all PCS standpipes covered is 469.1 gpm (UFSAR Table 6.2.2-1).

The PCS water coverage test described in COL Appendix C ITAAC 2.2.02.07b.i) and UFSAR Section 14.2.9.1.4 item d) is to be performed at ambient, outside conditions; therefore, little to no evaporation will occur during the test; thus, there is no mechanism for a significant reduction in coverage for a given PCS flowrate. This is consistent with the observations recorded in WCAP-15846, Chapter 7. Therefore, it is functionally equivalent to measure the wetted perimeter at any of the following elevations: 244 ft. (approximate elevation of the spring line), 255 ft. (approximate elevation of the top of the air baffle seal plate), or elevation 266 ft. The exact elevation is not relevant during this test as long as it is below the second weir (approximate elevation 269 ft.).

The proposed range of elevations is consistent with the conservative assumption of a maximum 90% wetted coverage between elevation 266 ft and the spring line in the AP1000 WGOTHIC containment evaluation model.

Summary

The PCS will continue to perform its safety-related design basis functions. The change to allow a range of elevations as the measurement location for the test does not change the requirement to perform the test as described nor does it change the performance requirements of the test. The air baffle panels are attached to the containment vessel starting at approximately elevation 255'. This change proposes no modifications to the air baffle. The air baffle structural configuration is depicted in UFSAR Figures 1.2-14 and 3.8.4-1. This change will decouple installation of the air baffle and the PCS preoperational testing. Therefore, there is no adverse change to the design or operation of any components of the PCS as a result of this change.

The proposed changes to ITAAC comply with the requirements of 10 CFR Part 52 Appendix D and the COL Appendix C (and plant-specific Tier 1) design descriptions, and 10 CFR 52.99 for ITAAC closure notification and completion.

This change does not make any significant technical changes to the COL Appendix C (and plant-specific Tier 1) design descriptions, tables, and figures. No structure, system, or component (SSC) design function or analysis as described in the UFSAR is affected. No defense-in-depth safety function is affected. There are no significant technical changes to plant-specific ITAAC.

COL Appendix C (and plant-specific Tier 1) information is comprised of the design information and functions subject to verification by the ITAAC closure process. The proposed change does not technically affect design criteria, design functions or involve a decrease in safety provided by the associated systems. COL Appendix C (and plant specific Tier 1) ITAAC information will continue to adequately validate the corresponding UFSAR (Tier 2) design commitments.

The proposed change does not impact an SSC, function or feature used in the prevention or mitigation of accidents or their safety or design analyses. The change does not affect any SSC accident initiator or initiating sequence of events or involve any safety-related SSC or function used to mitigate an accident.

The proposed change does not involve a change to a fission product barrier. The change does not result in a new failure mode, malfunction, or sequence of events that could affect safety. The change would not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures.

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

In conclusion, the proposed change does not involve a significant technical (design, analysis, function or qualification) change, (e.g., there is no change to an associated calculation, design parameter or design requirement). Therefore, the change will not result in a decrease in plant safety.

The proposed change associated with this license amendment request does not affect the containment, control, channeling, monitoring, processing or releasing of radioactive and non-radioactive materials. No effluent release path is impacted. Therefore, radioactive or non-radioactive material effluents are not be affected. Plant radiation zones (as described in UFSAR Section 12.3), controls under 10 CFR 20, and expected amounts and types of radioactive materials are not affected by the proposed change. Therefore, individual and cumulative radiation exposures will not change.

3. TECHNICAL EVALUATION (SEE SECTION 2)

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 52.98(f) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a COL. This amendment involves a departure from plant specific Tier 1 information, and corresponding changes to the COL Appendix C. Therefore, this amendment requires a proposed amendment to the COL. Accordingly, NRC approval is required prior to making the plant-specific changes in this license amendment request.

10 CFR 20, Subpart C, § 20.1201(a), Occupational dose limits for adults, requires the licensee control occupational dose to individual adults, except for planned special exposures under § 20.1206, to the more limiting of the annual limits prescribed therein. The proposed amendment does not involve an increase in plant radiation zones or a change in radiation shielding analysis methodology and will not adversely affect personnel occupational dose. The proposed amendment does not require a change in the design of any structure that provides radiation shielding. Therefore, engineered structures used to aid compliance with 10 CFR 20.1201(a) are not adversely affected.

10 CFR 50, Appendix A, General Design Criterion (GDC) 1, Quality standards and records, requires that structures, systems, and components important to safety be

designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. The change to the location for performing the wetted perimeter test continues to meet the testing requirements committed to in the UFSAR Subsections 6.2.2.4 with regard to the ability to measure containment coverage. GDC 1 also requires that appropriate records of the design, fabrication, erection, and testing of structures, systems, and components (SSCs) important to safety be maintained by or under the control of the nuclear power unit licensee throughout the life of the unit. The quality assurance requirements of Appendix B to 10 CFR Part 50 are applied to activities affecting the testing of the passive containment cooling system (PCS). The proposed change does not affect the quality assurance program and compliance with GDC 1 is maintained.

10 CFR 50, Appendix A, GDC 40, Testing of the containment heat removal system, requires that the containment heat removal system be designed to permit appropriate periodic functional testing to assure the operability and performance of the system as a whole. The passive containment cooling system provides containment heat removal to limit the peak containment pressure following design basis events. The system piping and components are designed to permit access for periodic inspection and testing of equipment, according to the ASME Code and technical specification requirements, to provide confidence in the integrity and capability of the system. The proposed change to move the location of the wetted perimeter measurement does not impact the ability to perform the functional test or the ability to evaluate the test results to confirm the ability to remove heat to limit the peak containment pressure following design basis events. Thus, compliance with GDC 40 is maintained.

10 CFR 50, Appendix A, GDC 46, Testing of cooling water system, requires that the cooling water system be designed to permit appropriate functional testing to assure the operability of the system as a whole and, under conditions as close to design as practical. The passive containment cooling system provides containment heat removal to limit the peak containment pressure following design basis events. The system piping and components are designed to permit access for periodic inspection and testing of equipment, according to the ASME Code and technical specification requirements, to provide confidence in the integrity and capability of the system. The proposed change to move the location of the wetted perimeter measurement does not impact the ability to perform the functional test or the ability to evaluate the test results to confirm the ability to remove heat to limit the peak containment pressure following design basis events. Thus, compliance with GDC 46 is maintained.

4.2 Precedent

None.

4.3 Significant Hazards Consideration Determination

The proposed change revises combined license (COL) Appendix C (and plant-specific Tier 1 information) and involved Updated Final Safety Analysis Report (UFSAR/plant-specific DCD) information to allow the containment vessel wetted

perimeter measurement to be taken at any elevation between the 266 ft. elevation and the spring line as described in the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) COL Appendix C Table 2.2.2-3, 2.2.02.07b.i) (Index Number 138) rather than at the spring line.

An evaluation to determine whether or not a significant hazards consideration is involved with the proposed amendment was completed by focusing on the three standards set forth in 10 CFR 50.92, "*Issuance of amendment*":

4.3.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change does not affect the operation or reliability of any system, structure or component (SSC) required to maintain a normal power operating condition or to mitigate anticipated transients without safety-related systems. The change to the Passive Containment Cooling System (PCS) Wetted Perimeter Measurement ITAAC involves no design changes or technical reanalysis. The change moves the location where the shell coverage measurement is to be taken. Measurement location is not a consideration in any accident and cannot affect any accident previously considered.

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

4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed amendment does not affect the operation of any safety-related SSC relied upon to mitigate design basis accidents. The proposed change to the measurement location of the PCS Wetted Perimeter Test does not involve a change to the design or any analysis. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No

The proposed change does not affect existing safety margins. The proposed change to take measurements of the wetted perimeter above the spring line does not involve a change to the design or effect the WGOTHIC analysis of the containment design basis accident (DBA) response in any way. No margin to the specified acceptable fuel design limits is affected by the proposed

changes.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

4.4 Conclusions

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) 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, it is concluded that the requested amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5. ENVIRONMENTAL CONSIDERATIONS

Section 2 of this License Amendment Request provides the details of the proposed change.

The proposed change affects the COL Appendix C and associated plant-specific Tier 1 information and involved UFSAR information.

(i) There is no significant hazards consideration.

As described in Section 4.3, Significant Hazards Consideration Determination, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." The Significant Hazards Consideration Determination concluded that: (1) the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the proposed amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed change does not affect any aspect of plant construction or operation that introduces a change to any effluent types (for example effluents containing chemicals or biocides, sanitary system effluents, and other effluents), and does not affect any plant radiological or non-radiological effluent release quantities. The proposed change does not affect the structure or functionality of any design feature or operational arrangements credited with controlling the release of effluents during plant operation. The proposed change to the test measurement location of the PCS wetted perimeter test does not involve a change to the design of the associated structures. The proposed changes to the ITAAC do not involve a change to any system associated with containing, controlling, channeling, monitoring, or processing radioactive or non-radioactive materials. The proposed change does not involve a change to any systems structures or component associated with containing,

controlling, channeling, monitoring, or processing radioactive or non-radioactive materials that may be released offsite.

Therefore, there is no significant change in the types or significant increase in the amounts of any radioactive or non-radioactive effluents that may be released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

Company and station policies keep radiation exposure of personnel within limits defined by 10 CFR 20, "Standards for Protection Against Radiation." Administrative procedures and practices are implemented to maintain radiation exposure of personnel as low as is reasonably achievable.

The proposed change to the test measurement location of the PCS wetted perimeter test ITAAC does not involve an increase in individual or cumulative occupational radiation exposure because the proposed change does not adversely affect radiation shielding analyses. Therefore, the requested amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the requested amendment, it has been determined that anticipated construction and operational effects of the requested amendment do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the requested amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed exemption is not required.

6. REFERENCES

None.

Southern Nuclear Operating Company

ND-19-0xxx

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Exemption Request:

PCS Wetted Perimeter Test Modification

(LAR-19-XXX)

(Enclosure 2 consists of 6 pages, including this cover page.)

1.0 PURPOSE

Southern Nuclear Operating Company (the Licensee) requests a permanent exemption from the provisions of 10 CFR 52, Appendix D, Section III.B, *Design Certification Rule for the AP1000 Design, Scope and Contents*, to allow a plant-specific departure from elements of the certification information in Tier 1 of the plant-specific AP1000 Design Control Document (DCD). The regulation, 10 CFR 52, Appendix D, Section III.B, requires an applicant or licensee referencing Appendix D to 10 CFR Part 52 to incorporate by reference and comply with the requirements of Appendix D, including certified information in DCD Tier 1. The proposed changes would modify plant-specific Tier 1 information. The change includes changing the test measurement location of the Passive Containment Cooling System (PCS) wetted perimeter test as specified in the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for the PCS.

This request for exemption provides the technical and regulatory basis to demonstrate that 10 CFR 52.63, §52.7, and §50.12 requirements are met and will apply the requirements of 10 CFR 52, Appendix D, Section VIII.A.4 to allow departures from generic Tier 1 information due to the proposed change, as described below.

Tier 1 Table 2.2.2-3

- Modify ITAAC Item 7b.i) (Index Number 138) to add “any elevation between elevation 266 ft. and” before “the spring line.”

2.0 BACKGROUND

The Licensee is the holder of Combined License numbers NPF-91 and NPF-92, which authorize construction and operation of two Westinghouse Electric Company AP1000 nuclear plants, named Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

As described in Tier 1 Section 2.2.2, the PCS removes heat from the containment during design basis events. Updated Final Safety Analysis Report (UFSAR/plant-specific DCD) Subsection 6.2.2.4.2 describes the pre-operational testing of the PCS and includes a containment water coverage test. However, currently the air baffle panels (also PCS components) are located at an elevation above the spring line, which causes construction and testing difficulties. If the water coverage measurement location is adjusted to above the spring line, the air baffle installation and subsequent PCS wetted coverage test can be decoupled and neither will be impacted by the other activity.

SNC proposes to revise COL Appendix C (and plant-specific Tier 1 information) to change the measurement location of the PCS Wetted Perimeter Test as described in Table 2.2.2-3 ITAAC Item 7.(b)(i). An exemption from elements of the AP1000 certified (Tier 1) design information to allow a departure from the Design Description is requested.

3.0 TECHNICAL JUSTIFICATION OF ACCEPTABILITY

An exemption is requested to depart from AP1000 plant-specific DCD Tier 1 material with regard to the measurement location of the PCS Wetted Perimeter Test as described in Table 2.2.2-3 ITAAC Item 07.(b)(i).

The design basis accident (DBA) containment analyses are performed using the WGOTHIC computer code in accordance with the WGOTHIC methodology described in UFSAR Subsection 6.2.1.1.3 and WCAP-15846. The analyses use a specific set of assumptions regarding the wetted coverage of containment during a DBA, including the assumption of a maximum wetted coverage of 90% below the second weir. The percent coverage is equivalent to a 220 gpm PCS water flow rate as discussed in WCAP-15846. The minimum allowable flow rate with all PCS standpipes covered is 469.1 gpm (UFSAR Table 6.2.2-1).

The PCS water coverage test described in Table 2.2.2-3 ITAAC Item 7.(b)(i) and UFSAR Subsection 14.2.9.1.4 item d) is to be performed at ambient, outside conditions; therefore, little to no evaporation will occur during the test; thus there is no mechanism for a significant reduction in coverage for a given PCS flowrate. This is consistent with the observations recorded in WCAP-15846, Chapter 7. Therefore, it is functionally equivalent to measure the wetted perimeter at any of the following elevations: 244 ft. (approximate elevation of the spring line), 255 ft. (approximate elevation of the top of the air baffle seal plate), or elevation 266 ft. The exact elevation is not relevant during this test as long as it is below the second weir (approximate elevation 269 ft.), the proposed range of elevations is consistent with the conservative assumption of a maximum 90% wetted coverage in the AP1000 WGOTHIC containment evaluation model.

Detailed technical justification supporting this request for exemption is provided in Section 2 of the associated License Amendment Request in Enclosure 1 of this letter.

4.0 JUSTIFICATION OF EXEMPTION

10 CFR Part 52, Appendix D, Section VIII.A.4 and 10 CFR 52.63(b)(1) govern the issuance of exemptions from elements of the certified design information for AP1000 nuclear power plants. Since SNC has identified changes to the Tier 1 information related to the testing of the PCS ITAAC, as discussed in Enclosure 1 of the accompanying License Amendment Request, an exemption from the certified design information in Tier 1 is needed.

10 CFR Part 52, Appendix D, and 10 CFR 50.12, §52.7, and §52.63 state that the NRC may grant exemptions from the requirements of the regulations provided six conditions are met: 1) the exemption is authorized by law [§50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§50.12(a)(1)]; 4) special circumstances are present [§50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, App. D, VIII.A.4].

The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1. This exemption is authorized by law

The NRC has authority under 10 CFR 52.63, §52.7, and §50.12 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR 50.12 and §52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in

a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is "authorized by law," as required by 10 CFR 50.12(a)(1).

2. This exemption will not present an undue risk to the health and safety of the public

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific DCD Tier 1 to depart from the AP1000 certified (Tier 1) design information. The plant-specific Tier 1 will continue to reflect the approved licensing basis for VEGP Units 3 and 4 and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the DCD. Therefore, the affected plant-specific DCD Tier 1 ITAAC will continue to serve its required purpose.

The proposed changes to the PCS ITAAC will not impact the ability of the structures, systems, or components (SSCs) to perform their design functions. The PCS will be tested in accordance with the design certification as verified by plant-specific Tier 1 Table 2.2.2-3 ITAAC. Because the change will not alter the operation of any plant equipment or system's ability to perform their design function, this change does not present an undue risk to existing equipment or systems. The change does not introduce any new industrial, chemical, or radiological hazards that would represent a public health or safety risk, nor does it modify or remove any design or operational controls or safeguards that are intended to mitigate any existing on-site hazards. Furthermore, the proposed change does not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures. Accordingly, this change does not present an undue risk from any new equipment or systems.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B, would not present an undue risk to the health and safety of the public.

3. The exemption is consistent with the common defense and security

The requested exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow the Licensee to depart from elements of the plant-specific DCD Tier 1 design information. The requested exemption does not alter or impede the design, function, or operation of any plant SSCs that is necessary to maintain a safe and secure plant status. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4. Special circumstances are present

10 CFR 50.12(a)(2) lists six "special circumstances" for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR 50.12(a)(2)(ii). That subsection defines special circumstances as when "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 rule under consideration in this request for exemption is 10 CFR 52, Appendix D, Section III.B, which requires that a licensee referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information. The VEGP Units 3 and 4 COLs reference the AP1000 Design Certification Rule and incorporate by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D.

The proposed change to the wetted perimeter test measurement location ITAAC ensures that the SSCs related to this amendment are constructed in accordance with the design certification as verified by plant-specific Tier 1 Table 2.2.2-3 ITAAC. These changes do not impact the ability of any SSCs to perform their functions or negatively impact safety. Accordingly, this exemption from the certification information will enable the licensee to safely construct, test and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current plant-specific certified design information in Tier 1 as required by 10 CFR Part 52, Appendix D, Section III.B in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5. The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

Based on the nature of the changes to the plant-specific Tier 1 information in this area and the understanding that these changes support the design and system functions of the PCS, these changes will not have a negative impact. Nevertheless, if other AP1000 licensees do not elect to request this exemption, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions associated with this request will continue to be maintained. This exemption request and the associated marked-up table demonstrate that there is a minimal change from the plant-specific AP1000 DCD, minimizing the reduction in standardization and consequently the safety impact from the reduction.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

6. The design change will not result in a significant decrease in the level of safety.

The proposed exemption would allow the measurement of the wetted perimeter test at any elevation between elevation 266 ft. and the spring line. Because the proposed change to ITAAC associated with this exemption request will not modify the design or operation of any systems or equipment, there are no new failure modes introduced by this change and the level of safety provided by the current SSCs will be unchanged.

The proposed change requires revisions to plant-specific Tier 1 information. There is no significant technical design change or plant function change associated with this exemption. Because the proposed change associated with this exemption request will not adversely affect the ability of any systems or equipment to perform their design functions and the level of safety provided by the current systems and equipment is unchanged, it is concluded that the change associated with this proposed exemption will not result in a significant decrease in the level of safety.

5.0 RISK ASSESSMENT

A risk assessment was not determined to be applicable to address the acceptability of this proposal.

6.0 PRECEDENT

None identified.

7.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed exemption does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a 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. Specific justification is provided in Section 5 of the corresponding license amendment request.

Accordingly, the proposed exemption meets the eligibility criterion 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 need to be prepared in connection with the proposed exemption.

8.0 CONCLUSION

The proposed change to DCD Tier 1 is necessary to allow the measurement of the wetted perimeter test at any elevation between elevation 266 ft. and the spring line. The exemption request meets the requirements of 10 CFR 52.63, 10 CFR 52.7, 10 CFR 50.12, 10 CFR 51.22 and 10 CFR 52 Appendix D. Specifically, the exemption request meets the criteria of 10 CFR 50.12(a)(1) in that the request is authorized by law, presents no undue risk to public health and safety, and is consistent with the common defense and security. Furthermore, approval of this request does not result in a significant decrease in the level of safety, satisfies the underlying purpose of the AP1000 Design Certification Rule, and does not present a significant decrease in safety as a result of a reduction in standardization.

9.0 REFERENCES

None.

Southern Nuclear Operating Company

ND-19-0xxx

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Proposed Changes to the Licensing Basis Documents

(LAR-19-xxx)

Note:

Added text is shown as bold Blue Underline

Deleted text is shown as bold ~~Red-Strikethrough~~

* * * indicates omitted existing text that is not shown.

(Enclosure 3 consists of 3 pages, including this cover page)

Revise COL Appendix C Table 2.2.2-3 (and associated plant-specific Tier 1), as shown.

Table 2.2.2-3 Inspections, Tests, Analyses, and Acceptance Criteria				
No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
138	2.2.02.07b.i	<p>***</p> <p>7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material.</p> <p>***</p>	<p>***</p> <p>i) Testing will be performed to measure the outside wetted surface of the containment vessel with one of the three parallel flow paths delivering water to the top of the containment vessel.</p> <p>***</p>	<p>***</p> <p>i) A report exists and concludes that when the water in the PCCWST uncovers the standpipes at the following levels, the water delivered by one of the three parallel flow paths to the containment shell provides coverage measured at <u>any elevation between elevation 266 ft. and</u> the spring line that is equal to or greater than the stated coverages.</p> <p>***</p>

Revise UFSAR Table 3.9-17, Note 1 as shown.

Notes:

- The flow capability of each PCS water drain line is demonstrated by conducting a test where water is drained from the PCS water storage tank onto the containment shell by opening two of the three parallel isolation valves. During this flow test the water coverage is also demonstrated. The test is terminated when the flow measurement is obtained and the water coverage is observed. The minimum allowable flowrate is 469.1 gpm with the passive containment cooling water storage tank level 27.5 feet (nominal) above the tank floor. The test may be run with a higher water level and the test results adjusted for the increased level. Water coverage is demonstrated by visual inspection that there is unobstructed flow from the lower weirs. In addition, ~~at least four~~ air baffle panels ~~will~~ may be removed at the containment vessel spring line, ~~approximately 90 degrees apart if needed~~, to permit visual inspection of the water coverage and the vessel coating. The water coverage observed at ~~these locations~~ at four locations, approximately 90 degrees apart, will be compared against the coverage measured at the same locations during pre-operational testing (see item 7.(b)(i) of ITAAC Table 2.2.2-3).

Revise UFSAR Subsection 6.2.2.4.2 as shown.

The containment coverage will be measured at the base of the upper annulus in addition to the coverage at any elevation between elevation 266 ft. and the spring line for the full flow case using the PCS water storage tank delivering to the containment shell and a lower flow case with both PCS recirculation pumps delivering to the containment shell. For the low flow case, a throttle valve is used to obtain a low flow rate less than the full capacity of the PCS recirculation pumps. This flow rate is then re-established for subsequent tests using the throttle valve. These benchmark values will be used to develop acceptance criteria for the Technical Specifications. The full flow condition is selected since it is the most important flow rate from the standpoint of peak containment pressure and the lower flow rate is selected to verify wetting characteristics at less than full flow conditions.

Revise UFSAR Table 6.2.2-1, Note 3 as shown.

Notes:

3. PCCWST Water Elevation corresponds to the nominal standpipe elevations in feet above the tank floor (Reference Plant Elevation 293'-9", see Figure 3.8.4-2). Wetted coverage is measured as the linear percentage of the containment shell circumference wetted measured at any elevation between elevation 266 ft. and the upper spring line for the safety analysis flow rate conditions.

Revise UFSAR Subsection 14.2.9.1.4 as shown.

- d) The proper operation of the passive containment cooling water distribution bucket and weirs is verified and proper wetting of the containment is observed and recorded during draindown testing in Item c, above. Water delivery and coverage is verified at the initial minimum water level and as each of the first two standpipes is uncovered. Water coverage is measured at any elevation between elevation 266 ft. and the spring line and the base of the upper annulus as described in Subsection 6.2.2.4.2.
