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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Request for License Amendment and Exemption:
Changes to the Building Gap between the Nuclear Island and Adjacent Buildings (LAR-18-002)

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 (COL) Numbers NPF-91 and NPF-92, for VEGP Units 3 and 4, respectively. The requested amendment includes changes to the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2* and Tier 2 information and related changes to the VEGP Units 3 and 4 COL Appendix C (and corresponding plant-specific DCD Tier 1) 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.

The proposed changes involve relaxing the minimum gap requirement above grade between the nuclear island and the annex building/turbine building and removing the minimum gap requirement for the radwaste building from the Inspections, Tests, Analyses and Acceptance Criteria (ITAAC).

Enclosure 1 provides the description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration Determination), and environmental considerations for the proposed changes in the License Amendment Request (LAR).

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

Enclosure 3 provides markups depicting the proposed changes to the VEGP 3&4 licensing basis documents.

This letter has been reviewed and confirmed to not contain security-related information. This letter contains no regulatory commitments.

SNC requests NRC staff approval of this license amendment by August 3, 2018, to support continued construction of adjacent nuclear island and annex building/turbine building walls. Approval by this date will allow sufficient time to implement the licensing basis changes prior to the associated construction activities. SNC expects to implement this proposed amendment (through incorporation into the licensing basis documents; e.g., the UFSAR) within 30 days of approval of the requested changes.

SNC also expects to submit a Preliminary Amendment Request (PAR) concurrently with this LAR submittal to support more near-term related construction activities. This PAR is expected to request a "no objection" finding from the NRC Staff by mid-March 2018.

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 Ms. Paige Ridgway at (205) 992-7516.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 1st of February 2018.

Respectfully submitted,

B. H. Whitley

Brian H. Whitley
Director, Regulatory Affairs
Southern Nuclear Operating Company

Enclosures: 1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Request for License Amendment: Changes to the Building Gap between the Nuclear Island and Adjacent Buildings (LAR-18-002)

2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Exemption Request: Changes to the Building Gap between the Nuclear Island and Adjacent Buildings (LAR-18-002)

3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 - Proposed Changes to the Licensing Basis Documents (LAR-18-002)

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Southern Nuclear Operating Company

ND-18-0106

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment:

Changes to the Building Gap between the Nuclear Island and Adjacent Buildings

(LAR-18-002)

(Enclosure 1 consists of 19 pages, including this cover page.)

Table of Contents

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC, or the "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 structures adjacent to the nuclear island are the annex building, the radwaste building, and the turbine building. As described in the Combined License (COL) Appendix C (and associated plant-specific Tier 1) Table 3.3-6 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) No. 3.3.00.13, Updated Final Safety Analysis Report (UFSAR) Appendix 2.5E Section 5.2 and UFSAR Subsections 3.7.2.8.1, 3.7.2.8.2 and 3.8.5.1, there is a 4 inch minimum gap above grade (grade is defined as Elevation 100′-0" in the licensing basis) between the nuclear island and adjacent buildings. The purpose of the gap is to avoid contact between the nuclear island and seismic Category II structures (annex building/turbine building) when the buildings deflect during a safe shutdown earthquake (SSE) event. The non-seismic radwaste building is assumed to not impair the integrity of the nuclear island if it were to impact the nuclear island or collapse during an SSE event, as discussed in UFSAR Subsection 3.7.2.8.2.

In order to facilitate the construction of the nuclear island and adjacent buildings and to maintain the seismic gap in compliance with the licensing basis, it is proposed to modify the seismic gap requirement above grade between the nuclear island and adjacent buildings in the licensing basis to accommodate construction tolerances. The proposed changes relax the minimum gap requirement above grade between the nuclear island and the annex building/turbine building from a 4 inch gap to a 3 inch gap and delete the gap requirement for the radwaste building from COL Appendix C ITAAC No. 3.3.00.13. The proposed changes delete "minimum" from the gap requirement for the radwaste building in UFSAR Subsection 3.7.2.8.2 to allow the gap between the radwaste building and the nuclear island to be considered a nominal gap.

The requested amendment requires a change to the UFSAR in the form of departures from the plant-specific DCD Tier 2 information (as detailed in Section 2) and involves changes to COL Appendix C (and associated plant-specific Tier 1). This enclosure requests approval of the license amendment necessary to implement the COL Appendix C changes and the involved UFSAR changes. Enclosure 2 requests the exemption necessary to implement the involved changes to the plant-specific Tier 1 information.

2. DETAILED DESCRIPTION

Change Number 1: Gap between the Nuclear Island and the Annex Building/Turbine Building

Currently, the requirement in the licensing basis for the minimum seismic gap between the nuclear island and annex building/turbine building is 4 inches, as specified in COL Appendix C ITAAC No. 3.3.00.13, UFSAR Appendix 2.5E Section 5.2 and UFSAR Subsections 3.7.2.8.1 and 3.8.5.1. UFSAR Subsection 3.8.5.1 requires that a minimum 1 inch gap be maintained between the nuclear island and annex building/turbine building considering the displacements of the buildings during SSE events. The purpose of the licensing basis requirements is to ensure there is no interaction between the nuclear island and annex building/turbine building during SSE events.

The proposed change is to relax the minimum gap requirement above grade in the licensing basis between the nuclear island and the annex building/turbine building from a 4 inch minimum gap to a 3 inch minimum gap in COL Appendix C ITAAC No. 3.3.00.13, UFSAR Appendix 2.5E Section 5.2 and UFSAR Subsections 3.7.2.8.1 and 3.8.5.1. Due to the 1 inch reduction in the minimum gap above grade, the maximum relative displacement between the roof of the nuclear island and the annex building/turbine building described in UFSAR Subsection 3.8.5.1 is changed from less than 3 inches to less than 2 inches. The maximum relative seismic displacement between the nuclear island and the annex building/turbine building was analyzed to be less than 2 inches; therefore, the reduction of the seismic gap requirement does not affect the requirement to maintain a 1 inch minimum gap during SSE events in UFSAR Subsection 3.8.5.1.

The seismic gap requirement between the nuclear island and annex building/turbine building in the underlying design documents is described as a nominal 4 inch gap above grade. The proposed change to the minimum seismic gap between the nuclear island and the annex building/turbine building is only to the minimum seismic gap requirement in the licensing basis and does not affect the 4 inch nominal design gap above grade presented in the underlying design documents. The proposed change does not impact any additional COL Appendix C descriptions or figures because the minimum gap between the nuclear island and the annex building/turbine building is not specified or dimensioned elsewhere in COL Appendix C text or figures. The proposed change does not affect the gap below grade between the nuclear island and the annex building/turbine building, as defined in the licensing basis and in the underlying design documents.

Change Number 2: Gap between the Nuclear Island and the Radwaste Building

The non-seismic radwaste building is evaluated based on the assumption that it impacts the nuclear island or collapses during an SSE event. The minimum gap between the nuclear island and the radwaste building is not used to prevent interactions between the two, and is not used as an input to the analysis. Therefore, the size of the gap above grade between the nuclear island and the radwaste building does not affect the licensing requirement that the radwaste building will not impair the structural integrity of the nuclear island if it impacts the nuclear island. Since the minimum gap between the radwaste building and the nuclear island above grade is not used as an input to the radwaste building analysis, it is not meaningful to perform the ITAAC inspection on this gap for Vogtle Units 3&4. The minimum gap requirement for the radwaste building is proposed to be deleted from COL Appendix C ITAAC No. 3.3.00.13. The discussion of the radwaste building is also deleted from COL Appendix C Subsection 3.3, Item 13.

UFSAR Subsection 3.7.2.8.2 requires a minimum 4 inch clearance above grade between the radwaste building and the nuclear island. Since the size of the gap is not contributing to the radwaste building analysis, it is not necessary to maintain a minimum gap between the radwaste building and the nuclear island above grade. It is proposed to delete “minimum” and modify “clearance” to “gap” in the first paragraph of UFSAR Subsection 3.7.2.8.2. The purpose of the change is to define a nominal gap requirement for the radwaste building which allows accounting for the construction tolerances defined in American Concrete Institute (ACI) 117 and American Institute of Steel Construction (AISC) 303.

The portions of the annex building and the turbine building adjacent to the nuclear island are classified as seismic Category II. The radwaste building is a non-seismic building. The

fourth paragraph of UFSAR Subsection 3.8.5.1 defines a minimum 4 inch gap requirement between the nuclear island and adjoining buildings, and the design requirement of a minimum 1 inch gap during SSE events. As discussed in UFSAR Subsection 3.7.2.8.2, the radwaste building does not affect the integrity of the nuclear island if it impacts the nuclear island or collapses during an SSE event. This has been noted through a superscript note (Note 1) in the first sentence of the fourth paragraph of UFSAR Subsection 3.8.5.1. This existing Note further indicates that the requirements in UFSAR Subsection 3.8.5.1 of no interactions between the nuclear island and adjoining buildings, the maximum relative seismic displacement and the minimum gap during an SSE event are not applicable to the radwaste building. However, the current wording of UFSAR Subsection 3.8.5.1 may cause misinterpretation that the gap requirements for seismic Category II structures are applicable to the radwaste building. The content of the fourth paragraph in UFSAR Subsection 3.8.5.1 is proposed to be modified to clarify the applicability of the requirements to the radwaste building. The revised fourth paragraph of UFSAR Subsection 3.8.5.1 shows independent gap requirements between the nuclear island and the annex building/turbine building as well as the nuclear island and the radwaste building.

The seismic gap requirement between the nuclear island and the radwaste building in the underlying design documents is described as a nominal 4 inch gap above grade. The proposed change to the seismic gap between the nuclear island and the radwaste building is only to clarify that the seismic gap requirement in the licensing basis is a 4 inch nominal seismic gap above grade. The proposed change does not impact any additional COL Appendix C descriptions or Figures because the gap between the nuclear island and the radwaste building is not specified or dimensioned elsewhere in COL Appendix C text or figures. The proposed change does not affect the gap below grade between the nuclear island and the radwaste building, as defined in the licensing basis and in the underlying design documents.

Licensing Basis Change Descriptions

COL Appendix C (and associated plant-specific Tier 1) Subsection 3.3:

- Remove the discussion of the radwaste building from the design description in Item 13.

COL Appendix C (and associated plant-specific Tier 1) Table 3.3-6 (ITAAC No. 3.3.00.13):

- Change the minimum horizontal clearance above elevation 100′-0" between the annex building and the nuclear island from 4 inch to 3 inch.
- Change the minimum horizontal clearance above elevation 100′-0" between the turbine building and the nuclear island from 4 inch to 3 inch.
- Delete the discussion of radwaste building from the “Design Commitment,” “Inspection, Test, Analyses,” and “Acceptance Criteria” columns.

UFSAR Appendix 2.5E Section 5.2:

- Change the 4 inch gap to a 3 inch minimum gap in the first paragraph.

UFSAR Subsection 3.7.2.8.1:

- Change the minimum clearance above grade between the annex building and the nuclear island from 4 inch to 3 inch.

UFSAR Subsection 3.7.2.8.2:

- Delete “minimum” and change “clearance” to “gap” in the last sentence of the first paragraph.

UFSAR Subsection 3.8.5.1:

- Change the minimum gap above grade between the nuclear island and the annex building/turbine building from 4 inch to 3 inch.
- Change the maximum seismic displacement between the roof of the nuclear island and the turbine and annex building from 3 inch to 2 inch.
- Delete “Adjoining buildings(1), such as” from the first sentence of the paragraph.
- Delete “and non-seismic” from the third sentence of the paragraph.
- Change “any adjoining” to “the turbine and annex” in the fourth sentence of the paragraph.
- Change “adjacent buildings” to “the nuclear island and adjacent seismic Category II buildings” in the sixth sentence of the paragraph.
- Add the sentence of “The radwaste building(1) is separated from the nuclear island by a 2 inch gap at and below grade, and a 4 inch gap above grade.” before the last sentence of the paragraph.

3. TECHNICAL EVALUATION

The nuclear island structures include the containment (the steel containment vessel and the containment internal structure) and the shield and auxiliary buildings. The containment and shield and auxiliary buildings are structurally integrated on a common basemat which is embedded below the finished plant grade level. The nuclear island structures provide protection for the safety-related equipment against the consequences of either a postulated internal or external event. The nuclear island structures are classified as seismic Category I and are designed to withstand the SSE loads.

Change Number 1: Gap between the Nuclear Island and the Annex Building/Turbine Building

The structures adjacent to the nuclear island are the annex building, the radwaste building, and the turbine building. The portion of the annex building adjacent to the nuclear island is a structural steel and reinforced concrete seismic Category II structure. The turbine building is a braced steel frame structure with the first bay (adjacent to the nuclear island) classified as seismic Category II and the rest of the bays classified as non-seismic. Seismic Category II structures are designed so that an SSE does not cause unacceptable structural failure or interaction with seismic Category I items.

AP1000 Generic Soil-Structure Interaction (SASSI) Analysis

The current licensing basis, including COL Appendix C ITAAC No. 3.3.00.13, UFSAR Appendix 2.5E Section 5.2 and UFSAR Subsections 3.7.2.8.1, 3.7.2.8.2 and 3.8.5.1, defines a minimum 4 inch gap above grade between the nuclear island and adjoining buildings. The purpose of the gap is to avoid contact between the nuclear island and seismic Category II structures (annex building/turbine building) when the buildings deflect during an SSE event. The seismic response analyses, including soil-structure interaction between the nuclear island and the adjoining building, are performed using the System for Analysis of Soil-Structure Interaction (SASSI) program. The maximum relative seismic displacement is established from the 2D SASSI analyses, as specified in UFSAR 3.7.2.8.4. The SASSI models consist of soil profiles and properties, basemat models and structure models, which include the coupled auxiliary and shield building stick model, containment internal structures stick model and steel containment vessel stick model. The SASSI models also include the annex building East-West and the turbine building first bay as stick models. Previous design changes are incorporated into the latest AP1000 generic 2D SASSI analysis, including changes to the nuclear island (e.g., polar crane mass change) and adjacent buildings (e.g., change of structures of turbine building first bay). The latest AP1000 generic 2D SASSI analyses show that the maximum relative seismic displacement between the annex building and the nuclear island is 0.95 inches, and between the turbine building and the nuclear island is 1.04 inches, which are both less than the 2 inch maximum relative seismic displacement requirement. The illustrative sketch of building deflections under an SSE is shown in Figure 1 below. Table 1 is also provided to summarize the current and proposed licensing requirements, and the values in the calculations which support the proposed licensing change.

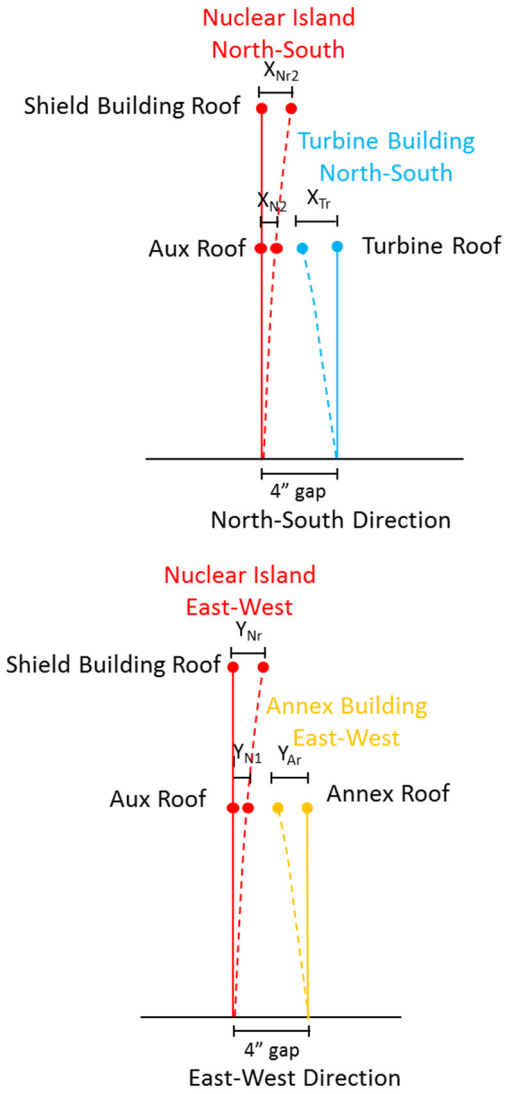

Figure 1: Illustrative Sketch of the Nuclear Island and Annex/Turbine Buildings Displacements during an SSE

Table 1: Summary of Change 1 and Technical Justifications

Licensing Basis (LB)		Current LB Requirements	Proposed LB Requirements	Calculations Supporting Proposed LB Requirements
T1	Table 3.3-6	Turbine Building & Annex Building: 4" min gap	Turbine Building & Annex Building: 3" min gap	N/A
T2	Subsection 3.7.2.8.1	Annex Building: $Y_{Ar} \leq 1.6$"	Annex Building: $Y_{Ar} \leq 1.6$"	The supporting calculation demonstrates $Y_{N1} + Y_{Ar} = 0.95$"
T2	Subsection 3.8.5.1	Annex Building: $Y_{N1} + Y_{Ar} \leq 3$" Turbine Building: $X_{N2} + X_{Tr} \leq 3$"	Annex Building: $Y_{N1} + Y_{Ar} \leq 2$" Turbine Building: $X_{N2} + X_{Tr} \leq 2$"	The supporting calculation demonstrates $Y_{N1} + Y_{Ar} = 0.95$" The supporting calculation demonstrates $X_{N2} + X_{Tr} = 1.04$"
		Annex Building: $4" - (Y_{N1} + Y_{Ar}) \geq 1"$ Turbine Building: $4" - (X_{N2} + X_{Tr}) \geq 1"$	Annex Building: $3" - (Y_{N1} + Y_{Ar}) \geq 1"$ Turbine Building: $3" - (X_{N2} + X_{Tr}) \geq 1"$	N/A

Settlement Evaluation

In addition to the effect of an SSE, differential settlement of foundations may impact the gaps between the nuclear island and adjacent buildings. Therefore, differential settlement of foundations is evaluated based on the Vogtle Units 3&4 settlement survey data collected from the site specific settlement monitoring program for potential impact on the gap between the nuclear island and adjacent buildings. The settlement monitoring program periodically monitors the settlement of building foundations during all construction stages to verify the structural displacements due to construction loads, and periodically monitors after the construction. The settlement survey data of the past few years indicates that the nuclear island basemat has deflected more in the center and less at the perimeter which would tend to cause the perimeter walls to lean towards the center of the nuclear building. Theoretically, this suggests that the nuclear island tends to tilt away from the turbine building, annex building and radwaste building. The survey data also indicates the foundation deflection contour of the turbine building is similar to the nuclear island's which would tend to cause the turbine building first bay structures to lean away from the nuclear island. The foundation deflection of the annex building is very uniform along the east-west direction and has a center-dipped trend along the north-south direction, which does not result in tilt of the perimeter structures to the west. From a practical perspective, as

construction load induced settlement occurs, even if walls were to lean towards the gap, construction means and methods require that, as wall construction progresses upward, walls are installed at original design location, offsetting any minor tilt that may have occurred in the walls below effectively minimizing building tilt induced by the short term settlement. The long term (consolidation) settlement is expected to be relatively small because the Vogtle site has very thick engineered compacted fill and Blue Bluff Marl overlying the lower sand stratum. Therefore, the differential settlement does not have adverse impact on the gaps between the nuclear island and adjacent buildings.

Site Specific SASSI Analysis

A site specific 2D SASSI analysis was performed for Vogtle Units 3&4 to show the acceptability of the AP1000 plant at the Vogtle site. The site specific SASSI analysis performed for the Vogtle site includes site specific soil properties and embedment effects, and site specific SSE. The site specific SASSI was performed before DCD Rev.19 was approved and does not include the recent changes in the nuclear island (e.g., polar crane mass change) and adjacent buildings (e.g., change of structures of turbine building first bay). A study has been performed to compare the deflections at the perimeter walls from the generic SASSI analysis using models including the significant building changes to those that do not include the changes. The results of the study confirmed that the recent changes to the building structures do not have significant impact on the result of the relative displacement between buildings. Therefore, the proposed change to the seismic gap provides sufficient separation between the nuclear island and adjacent seismic Category II buildings under site specific conditions.

Conclusion

The analyses results support the requirement that the maximum relative seismic displacement between the roof of the nuclear island and any adjoining buildings is less than 2 inches. The proposed change reduces the minimum gap requirement between the nuclear island and the annex building/turbine building to 3 inches, which leaves at least a 1 inch gap between the nuclear island and the annex building/turbine building during a seismic event. Therefore, the proposed change to the gap requirement does not reduce the 1 inch gap margin in a seismic event, as specified in UFSAR Subsection 3.8.5.1. The proposed change to the gap requirement does not affect the structural integrity requirements on seismic Category I structures. The safety functions of the seismic Category I structures are not impacted. The performance of the seismic Category II structures is not impacted and will not degrade the function of a seismic Category I structure, system or component.

Change Number 2: Gap between the Nuclear Island and the Radwaste Building

Table 2 is provided to summarize the current and proposed licensing requirements for the radwaste building, and the justifications which support the proposed licensing change.

Table 2: Summary of Change 2 and Technical Justifications

Licensing Basis (LB)		Current LB Requirements	Proposed LB Requirements	Calculations Supporting Proposed LB Requirements
T1	Table 3.3-6	Radwaste Building: 4" min gap	Radwaste Building: Delete gap requirement from T1	The evaluation of the radwaste building was made to consider its impact on the nuclear island or collapse during the safe shutdown earthquake. The gap between the nuclear island and the radwaste building is not an input to the impact evaluation of the radwaste building on the nuclear island, therefore it does not affect the requirements of the radwaste building (no impairment to the nuclear island integrity) in UFSAR Subsection 3.7.2.8.2. The supporting calculation continues to demonstrate the licensing requirement is met.
T2	Subsection 3.7.2.8.2	Radwaste Building: 4" min clearance	Radwaste Building: 4" gap	

Radwaste Building Impact Evaluation

The radwaste building is a steel frame building which is classified as non-seismic and is designed to the seismic requirements of the Uniform Building Code (UBC) with an Importance Factor of 1.25. As specified in UFSAR Subsection 3.7.2.8, non-seismic structures are evaluated to demonstrate that their seismic response does not impair the safety function of seismic Category I structures, systems or components by satisfying one of the following requirements:

- The collapse of the non-seismic structure will not cause the non-seismic structure to strike a seismic Category I structure, system or component.
- The collapse of the non-seismic structure will not impair the integrity of seismic Category I structures, systems or components.
- The structure is classified as seismic Category II and is analyzed and designed to prevent its collapse under the SSE.

The radwaste building is evaluated based on the assumption that it collapses and strikes the auxiliary building during an SSE by using the three methods in UFSAR Subsection 3.7.2.8.2, as described below:

- The maximum kinetic energy of the impact during a seismic event considers the maximum radwaste building and nuclear island velocities. The total kinetic energy is considered to be absorbed by the nuclear island and converted to strain energy. The deflection of the nuclear island is less than 0.2". The shear forces in the nuclear island walls are less than the ultimate shear strength based on a minus one standard deviation of test data.
- Stress wave evaluation shows that the stress wave resulting from the impact of the radwaste building on the nuclear island has a maximum compressive stress less than the concrete compressive strength.
- An energy comparison shows that the kinetic energy of the radwaste building is less than the kinetic energy of tornado missiles for which the exterior walls of the nuclear island are designed.

The impact evaluation demonstrates that the radwaste building impact on the nuclear island during an SSE event will not impair its structural integrity, and therefore meets the second requirement in UFSAR Subsection 3.7.2.8.

The kinetic energy for the impact evaluation is calculated based on the velocity and mass of the radwaste building and the auxiliary building. The evaluation demonstrates that when the radwaste building strikes the auxiliary building during an SSE event, the kinetic energy generated by the radwaste building strike is less than the kinetic energy generated by the automobile tornado missile. Since the nuclear island (shield building and auxiliary building) is designed to protect from this tornado missile, it will not be impaired by the impact of the radwaste building because the maximum kinetic energy generated by an automobile strike is significantly larger than the SSE induced radwaste building impact energy. The gap between the radwaste building and the nuclear island is not an input to the impact evaluation, and therefore does not affect the ability to meet the licensing basis requirement

for the nuclear island to remain integral under the radwaste building impact during an SSE event. The performance of the radwaste building and the nuclear island's safety-related functions remain the same. The deletion of the requirement on the gap between the radwaste building and the nuclear island from COL Appendix C ITAAC No. 3.3.00.13 does not have adverse impact on the structural behavior and safety functions of a structure, system or component. The proposed change in UFSAR Subsection 3.7.2.8.2 does not have adverse impact on the design and analysis of the radwaste building and the nuclear island.

Tolerance Requirements for the Radwaste Building

The radwaste building is a steel frame building which is allowed to be constructed with the tolerances defined in AISC 303. The adjacent auxiliary building column line 1 wall is a reinforced concrete wall which is allowed to be constructed with tolerances defined in ACI 117 and COL Appendix C Table 3.3-1. The purpose of the proposed change in UFSAR Subsection 3.7.2.8.2 is to allow a 4 inch nominal design gap between the radwaste building and the nuclear island to account for construction tolerances. The gap between the radwaste building and the nuclear island could be affected by the steel column straightness and plumbness tolerances defined by AISC 303, and concrete wall thickness and plumbness tolerances as defined by ACI 117 and COL Appendix C Table 3.3-1. However, the code applicable tolerances will not affect the conclusion that the radwaste building does not impair the integrity of the nuclear island because the gap between those two buildings is not an input to the radwaste impact analysis.

Clarification of the Radwaste Building Gap Requirement in UFSAR 3.8.5.1

As discussed in the technical evaluation above, the radwaste building is evaluated based on the assumption that it could impact the nuclear island or collapse during an SSE. The UFSAR Subsection 3.8.5.1 currently requires that there is no interaction between the nuclear island and adjacent seismic Category II buildings. However, it does not clearly define the requirement for the non-seismic radwaste building. UFSAR Subsection 3.8.5.1 is revised to specify the requirements for seismic Category II structures and non-seismic structures separately. It does not change the intent of the licensing basis requirements and is consistent with the requirements in COL Appendix C ITAAC No. 3.3.00.13, and UFSAR Subsections 3.7.2.8.1 and 3.7.2.8.2.

Conclusion

The design of the radwaste building meets requirements in UFSAR Subsection 3.7.2.8.1 and 3.7.2.8.2. The proposed change of the radwaste building gap requirement does not affect the structural integrity requirements on the seismic Category I structures. The safety function of the seismic Category I structures remains unchanged. The proposed change does not affect the structural performance and functions of the radwaste building.

Change Evaluation

The proposed changes do not affect the prevention and mitigation of abnormal events, e.g., accidents, anticipated operational occurrences, earthquakes, floods and external missiles, or their safety or design analyses. The proposed changes do not involve, nor interface with, any structure, system or component accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the plant-specific DCD or UFSAR are not affected.

The proposed changes do not adversely affect any safety-related system or component, equipment, design code, design code allowable value, function or design analysis, nor do they adversely affect any safety analysis input or result, or design/safety margin. The proposed changes do not interface with or affect safety-related equipment or a fission product barrier. No system or design function or equipment qualification would be adversely affected by the proposed changes. The changes do not result in a new failure mode, malfunction or sequence of events that could adversely affect a radioactive material barrier or safety-related equipment. The proposed changes do 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 changes have no impact on the Aircraft Impact Assessment (AIA). The changes described are to the gap between the nuclear island and adjoining buildings and does not impact the design or response of the containment vessel and shield building. There is no change to protection of plant structures, systems, and components against aircraft impact provided by the design of the shield building. There is no change to the design of key design features described in UFSAR Appendix 19F.

The proposed changes have no adverse effect on the ex-vessel severe accident. The overall design, geometry, and strength of the containment internal structures and other seismic Category I structures are not changed. The design and material selection of the concrete floor beneath the reactor vessel is not altered. The response of the containment to a postulated reactor vessel failure, including direct containment heating, ex-vessel steam explosions, and core concrete interactions is not altered by the changes to the gap between the nuclear island and adjoining buildings. The design of the reactor vessel and the response of the reactor vessel to a postulated severe accident are not altered by the changes to the gap between the nuclear island and adjoining buildings.

The proposed changes do not affect the radiological source terms (i.e., amounts and types of radioactive materials released, their release rates and release durations) used in the accident analyses, thus, the consequences of accidents are not affected. These changes do not affect the containment, control, channeling, monitoring, processing or releasing of radioactive and non-radioactive materials. The location and design of penetrations and the permeability of the concrete structures is not changed. No effluent release path is affected. The types and quantities of expected effluents are not changed. The functionality of the design and operational features that are credited with controlling the release of effluents during plant operation is not diminished. Therefore, neither radioactive nor non-radioactive material effluents are affected. Plant radiation zones, controls under 10 CFR Part 20, and expected amounts and types of radiologically controlled materials are not affected by the proposed changes. Therefore, individual and cumulative radiation exposures do not change.

These changes do not impact the emergency plans or the physical security evaluation since there are no changes to the configuration of walls, doors, or access to the nuclear island. The proposed changes do not involve, nor interface with, any structure, system or component accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the UFSAR are not affected.

Summary

The proposed changes revise COL Appendix C (and associated plant-specific Tier 1), Tier 2* information and Tier 2 information in the UFSAR with regard to requirements for the seismic gap between the nuclear island and adjoining buildings. The proposed changes do not adversely affect the performance of the nuclear island and adjoining buildings in an SSE event.

The proposed changes provide adequate protection for design basis events, do not adversely affect any safety-related equipment, design code and standard allowable value, safety-related function or design analysis, nor do the changes adversely affect safety analysis input or result, radioactive missile barrier, or design/safety margin.

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 activity involves a departure from plant-specific Tier 1 information, and a corresponding change to COL Appendix C, Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) information; therefore, this activity requires an amendment to the COL. Accordingly, NRC approval is required prior to making the plant-specific changes in this license amendment request.

10 CFR Part 52, Appendix D, VIII.B.6 and VIII.B.5.a, require prior NRC approval for departures from Tier 2* information and for Tier 2 information departures that involve changes to Tier 2* information, respectively. The proposed changes to the gap between the nuclear island and the adjoining buildings include departures from Tier 2 information, which involve a revision to UFSAR Tier 2* information. Therefore, a license amendment request (LAR) (as supplied herein) is required.

10 CFR Part 50, Appendix A, General Design Criterion (GDC) 1 requires that structures be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety functions to be performed. The proposed change does not change the criteria for the design, analysis, and construction of the nuclear island. These structures remain in conformance with the code requirements identified and supplemented in the UFSAR.

10 CFR Part 50, Appendix A, GDC 2 requires that structures withstand the effects of earthquakes and appropriate combinations of the effects of normal and accident conditions, including the effects of environmental loadings, such as earthquakes and other natural phenomena. The proposed changes have no impact on the seismic motions to which the nuclear island structures are subjected and no impact on the response of the nuclear island structures to seismic motions.

10 CFR Part 50, Appendix A, GDC 4 requires that systems, structures and components can withstand the dynamic effects associated with missiles, pipe whipping, and discharging fluids, excluding dynamic effects associated with pipe ruptures, the probability of which is extremely low under conditions consistent with the design basis for the piping. The proposed changes do not change the configuration of the walls and floors which provide separation between sources and potential targets. The proposed changes have no impact on the capability of the systems, structures, and components to withstand dynamic effects associated with missiles, pipe whipping, and discharging fluids as required by this criterion. The proposed changes do not change the requirements for anchoring safety related components and supports to seismic Category I structures

4.2 Precedent

None.

4.3 Significant Hazards Consideration Determination

The proposed amendment changes COL Appendix C (and associated plant-specific Tier 1), Tier 2*, and Tier 2 material incorporated into the Updated Final Safety Analysis Report (UFSAR) by revising the requirements for the gap between the nuclear island and adjoining buildings.

An evaluation to determine whether 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*," as discussed below:

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 changes are to relax the minimum gap requirement above grade between the nuclear island and the annex building/turbine building from a 4 inch gap to a 3 inch gap. The proposed changes modify and clarify the gap requirements between the nuclear island and the annex building/turbine building and radwaste building, respectively. The proposed change deletes the gap requirement for the radwaste building from the Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) in COL Appendix C. The proposed changes do not affect the operation of any systems or equipment that may initiate a new or different kind of accident, or alter any structure, system or component (SSC) such that a new accident initiator or initiating sequence of events is created.

The changes do not impact the support, design, or operation of mechanical and fluid systems. The changes do not impact the support, design, or operation of any safety-related structures. There is no change to plant systems or the response of systems to postulated accident conditions. There is no change to the predicted radioactive releases due to normal operation or postulated accident conditions. The plant response to previously evaluated accidents or external

events is not adversely affected, nor do the proposed changes create any new accident precursors.

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 changes are to relax the minimum gap requirement above grade between the nuclear island and the annex building/turbine building from a 4 inch gap to a 3 inch gap. The proposed changes modify and clarify the gap requirements between the nuclear island and the annex building/turbine building and radwaste building, respectively. The proposed changes delete the gap requirement for the radwaste building from the ITAAC in COL Appendix C. The proposed changes do not affect the operation of any systems or equipment that may initiate a new or different kind of accident, or alter any SSC such that a new accident initiator or initiating sequence of events is created.

The proposed changes do not adversely affect the design function of the nuclear island and adjoining buildings' SSC design functions or methods of operation in a manner that results in a new failure mode, malfunction, or sequence of events that affect safety-related or non-safety-related equipment. This activity 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 result in significant fuel cladding failures.

Therefore, the proposed amendment 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 changes maintain existing safety margin and provide adequate protection through continued application of the existing requirements in the UFSAR. The proposed changes satisfy the same design functions in accordance with the same codes and standards as stated in the UFSAR. These changes do not adversely affect any design code, function, design analysis, safety analysis input or result, or design/safety margin. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the proposed changes.

Because no safety analysis or design basis acceptance limit/criterion is challenged or exceeded by these changes, no significant margin of safety is reduced.

Therefore, the proposed changes do 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

The details of the proposed changes are provided in Sections 2 and 3 of this license amendment request.

The proposed amendment changes COL Appendix C (and associated plant-specific Tier 1), Tier 2*, and Tier 2 material incorporated into the Updated Final Safety Analysis Report (UFSAR) by revising the requirements for the gap between the nuclear island and adjoining buildings.

(i) There is no significant hazards consideration.

As described in Section 4.3, Significant Hazards Consideration Determination, an evaluation was completed to determine whether 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 amendment involves changes unrelated to any aspect of plant construction or operation that would introduce any change to effluent types (e.g., effluents containing chemicals or biocides, sanitary system effluents, and other effluents), or affect any plant radiological or non-radiological effluent release quantities. Furthermore, the proposed changes do not affect any effluent release path or diminish the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. Therefore, it is concluded that the proposed amendment does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

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

The proposed amendment involves changes to the gap between the nuclear island and adjoining buildings. Plant radiation zones are not affected, nor are there any changes to the controls required under 10 CFR Part 20 that preclude a significant increase in occupational radiation exposure. Consequently, these changes have no effect on individual or cumulative occupational radiation exposure during plant operation. Therefore, it is concluded that the proposed amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the proposed amendment, it has been determined that anticipated construction and operational impacts of the proposed 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 individual or cumulative occupational radiation exposure. Accordingly, the proposed 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), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6. REFERENCES

None.

Southern Nuclear Operating Company

ND-18-0106

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Exemption Request:

Changes to the Building Gap between the Nuclear Island and Adjacent Buildings

(LAR-18-002)

(Enclosure 2 consists of 8 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 Tier 1 information for which a plant-specific departure and exemption is being requested is related to changing the gap requirements between the nuclear island and the annex building/turbine building and removing the minimum gap requirement between the nuclear island and radwaste building from the Inspections, Tests, Analyses and Acceptance Criteria (ITAAC).

This request for exemption will apply the requirements of 10 CFR 52, Appendix D, Section VIII.A.4 to allow departures from Tier 1 information due to the following proposed changes to the ITAAC in Subsection 3.3 and Table 3.3-6:

- The minimum horizontal clearance above elevation 100′-0" between the annex building and the nuclear island and between the turbine building and the nuclear island is changed from 4 inch to 3 inch.
- The discussion of the radwaste building is removed from the design description in Subsection 3.3, Item 13 and from the “Design Commitment,” “Inspections, Tests, Analyses,” and “Acceptance Criteria” columns in Table 3.3-6, item 13.

This request will provide for the application of the requirements for granting exemptions from design certification information, as specified in 10 CFR Part 52, Appendix D, Section VIII.A.4, 10 CFR 52.63, §52.7, and §50.12.

2.0 BACKGROUND

The Licensee is the holder of Combined License Nos. 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.

The structures adjacent to the nuclear island are the annex building, the radwaste building, and the turbine building. As described in Tier 1 Table 3.3-6 item 13, there is a 4 inch minimum gap above grade (grade is defined as Elevation 100′-0" in the licensing basis) between the nuclear island and adjoining buildings. The purpose of the gap is to avoid contact between the nuclear island and seismic Category II structures (annex building/turbine building) when the buildings deflect during a safe shutdown earthquake (SSE) event. The non-seismic radwaste building is assumed to not impair the integrity of the nuclear island if it were to impact the nuclear island or collapse during an SSE event, as discussed in UFSAR Subsection 3.7.2.8.2.

In order to facilitate the construction of the nuclear island and adjacent buildings and to maintain the seismic gap in compliance with the licensing basis, it is proposed to modify

the seismic gap requirement above grade between the nuclear island and adjacent buildings in the licensing basis to accommodate construction tolerances. The proposed changes relax the minimum gap requirement above grade between the nuclear island and the annex building/turbine building from a 4 inch gap to a 3 inch gap and delete the gap requirement for the radwaste building from Tier 1 Table 3.3-6 item 13.

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 to change the gap requirements between the nuclear island and the annex building/turbine building and remove the minimum gap requirement between the nuclear island and radwaste building from the ITAAC.

The proposed change reduces the minimum gap requirement between the nuclear island and the annex building/turbine building to 3 inches, which leaves at least a 1 inch gap between the nuclear island and the annex building/turbine building during a seismic event. The Soil-Structure Interaction (SASSI) analyses and the settlement evaluation results support the requirement that the maximum relative seismic displacement between the roof of the nuclear island and any adjoining buildings is less than 2 inches. Therefore, the proposed change to the gap requirement between the nuclear island and the annex building/turbine building does not reduce the 1 inch gap margin in a seismic event, as specified in UFSAR Subsection 3.8.5.1. The seismic gap requirement between the nuclear island and the annex building/turbine building in the underlying design documents is described as a nominal 4 inch gap above grade. The proposed change to the minimum seismic gap between the nuclear island and the annex building/turbine building is only to the minimum seismic gap requirement in the licensing basis and does not affect the 4 inch nominal design gap above grade presented in the underlying design documents. The proposed change does not affect the gap below grade between the nuclear island and the annex building/turbine building, as defined in the licensing basis and in the underlying design documents.

The non-seismic radwaste building is evaluated based on the assumption that it impacts the nuclear island or collapses during an SSE event. The minimum gap between the nuclear island and the radwaste building is not used to prevent interactions between the two and is not used as an input to the analysis. Therefore, the size of the gap above grade between the nuclear island and the radwaste building does not affect the licensing requirement that the radwaste building will not impair the structural integrity of the nuclear island if it impacts the nuclear island. Since the minimum gap between the radwaste building and the nuclear island above grade is not used as an input to the radwaste building analysis, it is not meaningful to perform the ITAAC inspection on this gap for Vogtle Units 3&4. The minimum gap requirement for the radwaste building is proposed to be deleted from Subsection 3.3, item 13 and Table 3.3-6, item 13. The proposed change does not affect the gap below grade between the nuclear island and the radwaste building, as defined in the licensing basis and in the underlying design documents.

Detailed technical justification supporting this request for exemption is provided in Section 3 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 as discussed in this Enclosure and 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 to allow changes to the description of the structures 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 Tier 1 DCD 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 Tier 1 ITAAC will continue to serve its required purpose.

The proposed changes result in reducing the minimum gap requirements between the nuclear island and the annex building/turbine building and removing the minimum gap requirement between the nuclear island and radwaste building from the ITAAC.

Because the changes will not alter the operation of any plant equipment or system's ability to perform their design function, these changes do not present an undue risk to existing equipment or systems. The changes do not introduce any new industrial, chemical, or radiological hazards that would represent a public health or safety risk, nor do they modify or remove any design or operational controls or safeguards that are intended to mitigate any existing on-site hazards. Furthermore, the proposed changes 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. Accordingly, these changes do 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 exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would change the gap requirements between the nuclear island and the annex building/turbine building and remove the minimum gap requirement between the nuclear island and radwaste building from the ITAAC, as presented in plant-specific Tier 1 information, thereby departing from the AP1000 certified design information. The proposed exemption will enable performance of the ITAAC associated with these changed elements by reflecting the revised design information in the text and tables that are referenced in these ITAAC. The exemption does not alter or impede the design, function, or operation of any plant structures, systems, or components (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. The proposed exemption has no impact on plant security or safeguards.

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 changes to reduce the minimum gap requirements between the nuclear island and the annex building/turbine building and to remove the minimum gap requirement between the nuclear island and radwaste building from the ITAAC maintain and update the necessary information in the table to confirm that the SSCs related to this activity are constructed in accordance with the design certification as verified by plant-specific Tier 1 Table 3.3-6 ITAAC. The purpose of the changes is to facilitate the construction of the nuclear island and adjacent buildings by aligning the licensing basis with the underlying design documents and construction tolerances for the seismic gap.

The proposed changes to Tier 1 information are to modify the gap requirements between the nuclear island and the annex building/turbine building and remove the minimum gap requirement between the nuclear island and radwaste building from the 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 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 and the understanding that these changes are necessary to support the actual system functions, it is likely that other AP1000 licensees will request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the design functions of the systems associated with this request will continue to be maintained. The proposed changes to reduce the minimum gap requirements between the nuclear island and the annex building/turbine building and remove the minimum gap requirement between the nuclear island and radwaste building from the ITAAC, are departures from Subsection 3.3 and Table 3.3-6 in the plant-specific AP1000 DCD. This exemption request and the associated marked-up section and table demonstrate that the change does not involve a significant reduction in a margin of safety from the plant-specific AP1000 DCD, which minimizes 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 change the gap requirements between the nuclear island and the annex building/turbine building and remove the minimum gap requirement between the nuclear island and radwaste building from the ITAAC, as described in the plant-specific Tier 1 information.

The proposed changes require revisions to plant-specific Tier 1. There is no technical design change or plant function change associated with this exemption. Because the changes associated with this exemption request will not adversely affect the ability of any systems or equipment to perform their design functions, there are no new failure modes introduced by these changes and the level of safety provided by the current systems and equipment. Therefore, it is concluded that the changes associated with this proposed exemption will not result in a decrease in the level of safety.

5.0 RISK ASSESSMENT

A risk assessment was determined to not 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 changes to DCD Tier 1 are necessary to revise information in design descriptions from the plant-specific Tier 1. 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, presents special circumstances, does not present a significant decrease in safety as a result of a reduction in standardization, and meets the eligibility requirements for categorical exclusion.

9.0 REFERENCES

None.

Southern Nuclear Operating Company

ND-18-0106

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Proposed Changes to the Licensing Basis Documents

(LAR-18-002)

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 4 pages, including this cover page)

COL Appendix C (and associated plant-specific Tier 1) Subsection 3.3 "Buildings"

Subsection 3.3 - Revise item 13, as shown below.

13. Separation is provided between the structural elements of the turbine~~,~~ **and** annex~~, and radwaste~~ buildings and the nuclear island structure. This separation permits horizontal motion of the buildings in a safe shutdown earthquake without impact between structural elements of the buildings.

COL Appendix C (and associated plant-specific Tier 1) Table 3.3-6 "Inspections, Tests, Analyses and Acceptance Criteria"

Table 3.3-6 – Revise the "Design Commitment," "Inspections, Tests and Analyses," and "Acceptance Criteria" columns, as shown below.

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
***	***	***
13) Separation is provided between the structural elements of the turbine~~,~~ **and** annex~~, and radwaste~~ buildings and the nuclear island structure. This separation permits horizontal motion of the buildings in a safe shutdown earthquake without impact between structural elements of the buildings.	An inspection of the separation of the nuclear island from the annex~~, radwaste~~ and turbine building structures will be performed. The inspection will verify the specified horizontal clearance between structural elements of the adjacent buildings, consisting of the reinforced concrete walls and slabs, structural steel columns and floor beams.	The minimum horizontal clearance above floor elevation 100'-0" between the structural elements of the annex **and radwaste** building~~s~~ and the nuclear island is **4** **3** inches. The minimum horizontal clearance above floor elevation 100'-0" between the structural elements of the turbine building and the nuclear island is **4** **3** inches.
***	***	***

UFSAR Appendix 2.5E Section 5.2 "Adjacent Building Seismic Demand"

Section 5.2 – Revise the first paragraph, as shown below.

5.2 Adjacent Building Seismic Demand

The 2D SASSI east-west model, nuclear island and Annex building (Seismic Category II building), was used to obtain the relative displacement between nuclear island and at top of the annex building at NI elevation 179'-7" and annex building elevation 182'-8". The maximum relative displacement between nuclear island and at top of the Annex building for the ESP Best Estimate soil case is 2", which is less than the **4** **3** inch **minimum** gap between nuclear island and annex building. The response spectra at the location of the Seismic Category II Annex building are given in Figures 5.2-1 and 5.2-2 for the horizontal and vertical directions. The response spectra is compared to the AP1000 SSI Envelope (identified as ap2d) for the ESP best estimate soil case (identified as vg2d) at 5% damping.

UFSAR Subsection 3.7.2.8.1 "Annex Building"

Subsection 3.7.2.8.1 – Revise the second paragraph, as shown below.

3.7.2.8.1 Annex Building

* * *

The minimum space required between the annex building and the nuclear island to avoid contact is obtained by absolute summation of the deflections of each structure obtained from either a time history or a response spectrum analysis for each structure. The maximum displacement of the roof of the annex building is 1.6 inches in the east-west direction. The minimum clearance between the structural elements of the annex building above grade and the nuclear island is **4** **3** inches.

UFSAR Subsection 3.7.2.8.2 "Radwaste Building"

Subsection 3.7.2.8.2 – Revise the first paragraph, as shown below.

3.7.2.8.2 Radwaste Building

The radwaste building is classified as nonseismic and is designed to the seismic requirements of the Uniform Building Code, Zone 2A with an Importance Factor of 1.25. As shown in the radwaste building general arrangement in Figure 1.2-22, it is a small steel framed building. If it were to impact the nuclear island or collapse in the safe shutdown earthquake, it would not impair the integrity of the reinforced concrete nuclear island. The ~~**minimum clearance**~~ **gap** between the structural elements of the radwaste building above grade and the nuclear island is 4 inches.

* * *

UFSAR Subsection 3.8.5.1 "Description of the Foundations"

Subsection 3.8.5.1 – Revise the fourth paragraph, as shown below.

3.8.5.1 Description of the Foundation

* * *

[~~*Adjoining buildings(1), such as the*~~ *The turbine building and annex building*~~,~~ *are structurally separated from the nuclear island structures by a 2-inch gap at and below the grade. A* ~~*4-inch*~~ *3-inch minimum gap is provided above grade*.]* This provides space to prevent interaction between the nuclear island structures and the adjacent seismic Category II ~~and non-seismic~~ structures during a seismic event. The maximum relative seismic displacement between the roof of the nuclear island and ~~any adjoining~~ the turbine and annex buildings is less than ~~3~~ 2 inches. This results in a clearance (gap) between buildings greater than 1 inch during a seismic event. Therefore, there are no interactions between the nuclear island and adjacent seismic Category II buildings during a seismic event. The radwaste building(1) is separated from the nuclear island by a 2-inch gap at and below grade and a 4-inch gap above grade. Figure 3.8.5-1 shows the foundations for the nuclear island structures and the adjoining structures.

Note: There is no impact to the wording of Note 1 in UFSAR Subsection 3.8.5.1 as a result of this change.