Vogtle PEmails

From: Gleaves, Bill
Sent: Tuesday, September 24, 2019 7:13 AM
To: Vogtle PEmails
Subject: FW: Draft Revision to SNC LAR-19-005
Attachments: DRAFT SNC LAR-19-005 R1.pdf

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Billy

William (Billy) Gleaves
Senior Project Manager
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US Nuclear Regulatory Commission
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Sent: Friday, September 20, 2019 3:53 PM
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Cc: Roberts, Kelli Anne <KROBERTS@southernco.com>
Subject: [External_Sender] Draft Revision to SNC LAR-19-005

Chandu/Billy,

Please find attached a draft revision to SNC LAR-19-005. The revision to the LAR and exemption incorporate responses to the staff's draft RAIs and changes to the initial LAR and exemption. The revisions to the body of the LAR are denoted with revision bars in the right hand margins and changes to the COL Appendix C markups are shown in new colors to reflect the changes to the initial LAR.

SNC is prepared to discuss the revised LAR and draft RAI responses at the staff's earliest availability.

Please let me know if there are any questions on this draft.

Thanks,

Steve Leighty

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Hearing Identifier: Vogtle_COL_Docs_Public
Email Number: 482

Mail Envelope Properties (BL0PR0901MB43872C3901E2DBE511B298099F840)

Subject: FW: Draft Revision to SNC LAR-19-005
Sent Date: 9/24/2019 7:13:17 AM
Received Date: 9/24/2019 7:13:22 AM
From: Gleaves, Bill

Created By: Bill.Gleaves@nrc.gov

Recipients:
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>
Tracking Status: None

Post Office: BL0PR0901MB4387.namprd09.prod.outlook.com

Files	**Size**	**Date & Time**
MESSAGE	1744	9/24/2019 7:13:22 AM
image001.gif	2058	
DRAFT SNC LAR-19-005 R1.pdf	965378	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:


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September XX, 2019

Docket Nos.: 52-025
52-026

ND-19-1023
10 CFR 50.90
10 CFR 52.63

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Revision to Request for License Amendment and Exemption:
Consolidation of Structural Building ITAAC (LAR-19-005R1)

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Ladies and Gentlemen:

By letter dated March 29, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19088A274) Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requested an amendment to Combined License (COL) Numbers NPF-91 and NPF-92, for VEGP Units 3 and 4 (respectively). The requested amendment included changes to the VEGP Unit 3 and Unit 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 was also requested for the plant-specific Tier 1 material departures.

The License Amendment Request (LAR) proposed the consolidation of certain building and structure related Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). Specifically, SNC has determined that some building and structure related ITAAC Acceptance Criteria are duplicative. To correct this condition, SNC proposed to revise COL Appendix C (and plant-specific Tier 1 information) to consolidate duplicative ITAAC Acceptance Criteria for certain structures and clarify that evaluations of thickness deviations would be included in the reconciliation and thickness reports described in ITAAC Acceptance Criteria.

This revision to LAR-19-005 is being submitted to address comments provided by the U. S. Nuclear Regulatory Commission (NRC) staff during July 10, 2019, August 15, 2019 and September 10, 2019 public meetings and in draft Requests for Additional Information (RAIs) dated July 9, 2019, August 1, 2019 and September 5, 2019. Enclosures 1, 2, and 3 of LAR-19-005 are replaced in their entirety with Enclosures 4, 5, and 6 of this revised amendment request. Revision bars in the right-hand margin indicate the differences between Enclosures 1 and 4 and Enclosures 2 and 5. In addition, SNC's response to the draft RAI is provided in Enclosure 7 to this letter.

Enclosure 4 provides the description, technical evaluation, regulatory evaluation (including the significant hazards consideration), and environmental considerations for the proposed changes.

Enclosure 5 provides the background and supporting basis for the requested exemption.

Enclosure 6 provides the proposed license basis changes.

Enclosure 7 provides the draft NRC RAI and SNC's response.

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

The revised information provided in the enclosures does not change the scope of the requested license amendment or exemption, nor does it change the conclusions in the Technical Evaluation or the conclusions in the No Significant Hazards Consideration Determination.

SNC requests staff approval of this revised license amendment by November 15, 2019 to support 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 XXrd day of September 2019.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

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Michael J. Yox
Regulatory Affairs Director
Vogtle 3 & 4

MJY/RAS/sfr

Enclosures: 1)-3) Provided with original submittal.

4) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Revised Request for License Amendment: Consolidation of Structural Building ITAAC (LAR-19-005R1)
5) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Revised Exemption Request: Consolidation of Structural Building ITAAC (LAR-19-005R1)
6) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Revised Proposed Changes to the Licensing Basis Documents (LAR-19-005R1)
7) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Response to Draft Request for Additional Information, dated August 1, 2019

cc:

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Southern Nuclear Operating Company

ND-19-1023

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Revised Request for License Amendment:

Consolidation of Structural Building ITAAC

(LAR-19-005R1)

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(Enclosure 4 consists of 16 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, as appropriate. The proposed changes include consolidating Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for structural buildings and revising Acceptance Criteria to reflect evaluations of as-built deviations in wall and floor thicknesses will be provided as part of the reports described in ITAAC. This enclosure requests approval of a license amendment necessary to implement the COL Appendix C 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

COL Appendix C, Section 3.3 provides design descriptions for AP1000 structural buildings. The buildings described in Section 3.3 include Nuclear Island (NI) structures as well as, the annex, turbine, and radwaste buildings. The NI includes containment internal structures, and the shield and auxiliary buildings. The NI structures are seismic Category I and are designed and constructed to withstand design basis loads without a loss of structural integrity and safety-related functions. The walls and floors of NI buildings are defined in COL Appendix C Table 3.3-1. COL Appendix C Section 3.3 does not provide the structural design functions for the annex, turbine, or radwaste buildings. However, wall and floor thicknesses for the annex building and wall thicknesses for the turbine building are defined in COL Appendix C Table 3.3-1, and wall thicknesses for the radwaste building are defined in ITAAC Index Number 782.

There are sixteen ITAAC for structural buildings. These ITAAC have two purposes, one is for verifying structural function and the other is for verifying the radiation shielding function. The ability of as-built structures to perform their structural functions is demonstrated through reconciliation reports and thickness reports. The ability of the as-built structures to perform their shielding function is demonstrated through thickness reports. The structural building ITAAC are summarized in the following Table, "Structural Building ITAAC."

It has been identified that some of the Acceptance Criteria for the building structures are duplicative. COL Appendix C (and plant-specific Tier 1) changes are proposed to consolidate ITAAC with duplicative Acceptance Criteria for building structures and clarify that evaluations of thickness deviations will be included in the reconciliation and thickness reports described in ITAAC Acceptance Criteria. The Table illustrates the duplication of building-related reports.

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Table: Structural Building ITAAC

Building / Structure		Structural Function (ITAAC Index No.) ITAAC No.		Shielding Function (ITAAC Index No.) ITAAC No.
		Reconciliation Report	Thickness Report	Thickness Report
Nuclear Island (NI)	Containment Internal Structure	(760) 3.3.00.02a.i.a	(764) 3.3.00.02a.ii.a	(777) 3.3.00.03a
	Shield Building	(761) 3.3.00.02a.i.b	(765) 3.3.00.02a.ii.b	(778) 3.3.00.03b
	Auxiliary Building [Non-Radiological]	(762) 3.3.00.02a.i.c	(766) 3.3.00.02a.ii.c	(779) 3.3.00.03c
	Auxiliary Building [Radiological]	(763) 3.3.00.02a.i.d	(767) 3.3.00.02a.ii.d	(780) 3.3.00.03d
Annex Building		-	(768) 3.3.00.02a.ii.e	(781) 3.3.00.04a
Turbine Building		-	(769) 3.3.00.02a.ii.f	-
Radwaste Bldg. – Waste Accumulation Room		-	-	(782) 3.3.00.04b

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Proposed Changes to Nuclear Island Structural Function ITAAC

As illustrated in the Table above, there are three ITAAC[1] for each of the NI buildings (i.e., containment internal structures, shield building, auxiliary building non-radiological, and auxiliary building radiological). The structural function Design Commitment for the NI building ITAAC is to withstand design basis loads without loss of structural integrity or safety related functions. The corresponding Acceptance Criteria are to produce reconciliation reports (ITAAC Index Numbers 760/761/762/763) and a structural thickness report (ITAAC Index Numbers 764/765/766/767) for each NI building to verify that the as-built structures meet the Design Commitment. The NI also has Design Commitments to provide shielding during normal operations. The corresponding ITAAC Acceptance Criteria require shielding thickness reports (ITAAC Index Numbers 777/778/779/780) be produced for each NI building

[1] *Hereafter, ITAAC Index numbers are used for identification in lieu of the ITAAC number.*

which demonstrates that the as-built structures meet the Design Commitment.

The NI as-built reconciliation reports reconcile design changes and site-specific non-conformances between as-built and as-designed structures. Since both the reconciliation reports and thickness reports will reconcile identified wall thickness deviations, the Acceptance Criteria for the thickness reports is duplicative and can be deleted. Accordingly, thickness reports associated with ITAAC Index Numbers 764, 765, 766, 767, 777, 778, 779 and 780 can be consolidated into the reconciliation reports for ITAAC Index Numbers 760, 761, 762, 763 for the NI buildings. Similarly, the shielding Design Commitment of NI building structures is combined with the structural Design Commitment, and the reconciliation report justifies deviations from both structural and shielding perspectives.

A note is proposed to be added to COL Appendix C Table 3.3-1 to clarify that construction thickness deviations in NI structures, from those thicknesses specified in the table, are reconciled in the reconciliation reports in accordance with the ITAAC requirements.

Proposed Changes to Nuclear Island Radiation Shielding ITAAC

To address duplicative radiation shielding Acceptance Criteria, it is proposed that ITAAC Index Numbers 760, 761, 762, 763 in COL Appendix C Table 3.3-6 be revised to add the shielding requirements currently specified in the thickness report Design Commitment of ITAAC Index Numbers 777, 778, 779 and 780, respectively. Specifically, ITAAC Index Numbers 760, 761, 762, 763 would be revised to require analysis of radiation shielding in the Inspections, Tests and Analyses, and to require the verification of no impact to established radiological zoning and equipment qualification. The proposed acceptance criteria will continue to demonstrate the radiation zones and equipment qualification requirements are met in accordance with VEGP 3&4 UFSAR Tier 2 design criteria including UFSAR Subsections 3.11.4 “Estimated Radiation and Chemical Environment,” 3D.5.1.2 “Radiation Dose,” and 12.3.2.1 “Shielding, Design Objectives”.

To ensure the consolidated reconciliation reports comply with COL Appendix C Table 3.3-1, the consolidated reconciliation report Acceptance Criteria will be revised to clarify that NI structural deviations from the thicknesses described in COL Appendix C Table 3.3-1 will be resolved in the reconciliation reports in accordance with the ITAAC requirements.

Proposed Changes to the Annex Building and Turbine Building ITAAC

There are two ITAAC for the annex building structure. The first, ITAAC Index Number 768, requires a thickness report to demonstrate the structural function and the second, ITAAC Index Number 781, requires a thickness report to verify radiation shielding. Similarly, the turbine building structure has ITAAC Index Number 769 which requires a thickness report to verify the structural function. The information provided in the annex building thickness report required by ITAAC Index Number 781 is duplicative with the information in the thickness report required by ITAAC Index Number 768. Therefore, ITAAC Index Number 781 can be consolidated into ITAAC Index Number 768.

The Acceptance Criteria in ITAAC Index Numbers 768 and 769 are to produce thickness reports to demonstrate that the walls and, as applicable, floors in the annex and turbine buildings are consistent with the thicknesses specified in Table 3.3-1. Annex and turbine

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building construction thickness deviations are evaluated and dispositioned in accordance with 10 CFR 50 Appendix B processes (i.e., Nonconformance & Disposition Reports (N&D Reports)), which ensure there are no unacceptable impacts to the annex and turbine structural functions or the annex building radiation shielding function. The inclusion of the thickness deviation evaluations in the thickness reports for the annex and turbine buildings continues to meet the design purposes of the ITAAC.

Therefore, ITAAC Index numbers 768 and 769 Acceptance Criteria can be clarified such that the thickness reports of the annex and turbine buildings also include evaluations of thickness deviations identified during construction and demonstrate there is no loss of the annex building structural and radiation shielding functions or turbine building structural function.

Notes will be added to Table 3.3-1 to clarify that annex and turbine building construction thickness deviations are evaluated in the thickness report in accordance with the ITAAC requirements. The proposed amendment will modify ITAAC Index number 768 for the annex building in Table 3.3-6 of COL Appendix C to add the shielding requirements to the "Design Commitment."

Proposed Changes to the Radwaste Building ITAAC

There is one ITAAC associated with the waste accumulation room in the radwaste building. The associated Design Commitment for the ITAAC specifies that the walls of the waste accumulation room provide shielding during normal operations. The corresponding Acceptance Criteria specifies that a report is produced that demonstrates that the shield walls of the waste accumulation room in the radwaste building are consistent with the concrete wall thickness specified in ITAAC Index Number 782.

Waste accumulation room wall and floor thicknesses that deviate from the values specified in COL Appendix C (and plant-specific Tier 1) Table 3.3-6 are evaluated and dispositioned in N&D Reports. This process demonstrates that there is no impact to the radiation shielding function or corrective actions are taken to restore compliance. Therefore, the waste accumulation room thickness deviation evaluations demonstrate the as-built structure continues to meet the Design Commitment of ITAAC Index Number 782. It is proposed that ITAAC Index Number 782 Acceptance Criteria be clarified to specify that the waste accumulation room thickness report includes evaluations of thickness deviations identified during construction and demonstrates there is no impact to established radiological zoning and equipment qualification.

It is also proposed to delete the adjective "minimum" which modifies "concrete wall thickness" from the Acceptance Criteria of ITAAC Index Number 782 to clarify that the revised Acceptance Criteria allow deviations in wall thicknesses.

Technical Evaluation

Changes to Structural Building ITAAC

The processes outlined in 10 CFR 52 Appendix D Section VIII, as supplemented by License Condition 2.D(13), and 10 CFR 50 Appendix B will continue to be followed.

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10 CFR 52 Appendix D Section VIII Processes

The proposed changes do not involve changes to the design of the plant. The proposed changes do not affect any of the design functions of the structural buildings as described in the Updated Final Safety Analysis Report (UFSAR). Deviations that could potentially affect the design functions of structural buildings or alter compliance with applicable design codes or licensing basis requirements continue to be evaluated and dispositioned under the 10 CFR 52 Appendix D Section VIII process, as supplemented by License Condition 2.D(13).

The proposed amendment does not change the requirement for NI structures to comply with applicable concrete and structural codes as defined in the licensing basis. Specifically, the proposed changes do not alter the requirement that seismic Category I and II structures comply with applicable design codes, including ACI 349-01 and ANSI/AISC N690-94. In addition, supplemental requirements described in UFSAR Subsection 3.8.4.4.1, “Seismic Category I Structures,” UFSAR Subsection 3.8.4.5, "Structural Criteria," and the guidance contained in NRC Regulatory Guides 1.69, 1.115, 1.142, and 1.143 as discussed in UFSAR Appendix 1A, “Conformance with Regulatory Guides,” continue to be met.

The proposed amendment does not change the requirement for structures to comply with 10 CFR 50, Appendix A, GDC 19, Control Room. The proposed changes to the NI ITAAC do not involve a change to the design of the NI. The annex building provides the security-controlled access path to the main control room. The change to the annex building ITAAC does not involve a change to the design of the annex building, shielding for the annex building, or the normal operation or post-accident radiation zoning of the annex building. The proposed change to the annex building does not affect the radiation zone of the security-controlled access path to the main control room because the floor was not credited with radiation shielding in development of the predicted radiation zoning for the security entrance shown in UFSAR Figure 12.3-2. Therefore, the design continues to comply with GDC 19.

Change Control Process

During construction and quality control inspection, deviations from the design are identified and documented in N&D Reports. The N&D procedure was developed and is maintained in accordance with 10 CFR 50 Appendix B. Each nonconformance is individually reviewed and given a disposition by site design engineering. The N&D process requires interdisciplinary reviewers to determine the level of the impact and provide justification for deviations. For example, if a section of wall is identified as being thinner than the Acceptance Criteria, the cognizant design engineering group is involved to determine if structural or radiation shielding functionality is impacted. The N&D process identifies the design document(s) that the deviation potentially affects and when completed the record is archived.

The possible dispositions in N&D Reports are: “meets requirements,” “rework,” “use-as-is,” “repair,” “return to vendor” or “scrap.” Use-as-is and repair dispositions represent a deviation to the specified design requirements. This type of disposition is subject to the same design control measures as applied to the original design and are reviewed and approved by the organization that performed the original design. The design control measures are established in accordance with requirements in 10 CFR 50 Appendix B Criterion III. Repaired and reworked items are re-verified in accordance with original criteria or as specified in the disposition.

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Technical justification is required for use-as-is and repair dispositions that include sufficient information to justify the adequacy of the nonconforming item for its intended use. The justification assures that the structural design continues to meet the AP1000 plant design criteria documents and hence assures the structural design and shielding design objectives continue to satisfy the design criteria of UFSAR Subsections 3.8 and 12.3.2.2. The technical justification would (as applicable) include:

- Reference to existing calculations or analyses upon which the design is based.
- A description of the basis for the acceptability determination of an impacted component supported by additional calculations or analysis as deemed appropriate.
- Reference to any affected structural, functional or performance requirements.

The N&D process evaluates the impact of the deviations on the existing calculations or analyses upon which the design is based and identifies the impacted documents. The N&D Reports are archived as plant records and are associated (linked) with the impacted documents so that future review of an impacted document includes a review of the N&D Report to allow for systematic reconciliation.

As part of the N&D process, a review of the VEGP 3&4 licensing basis requirements associated with the nonconforming condition is performed. If any change to VEGP 3&4 UFSAR Tier 1, Tier 2 or Tier 2* information is required to address the nonconformance, the processes for changes and departures described in 10 CFR 52, Appendix D, Section VIII will be followed. For instance, construction deviations affecting radiation shielding functionality (e.g., occupational and public dose, environmental qualification, aggregate impacts) are evaluated to ensure the resultant change is consistent with the Tier 2 design criteria, including but not limited to, VEGP 3&4 UFSAR Subsections 3.11.4 “Estimated Radiation and Chemical Environment,” 3D.5.1.2 “Radiation Dose,” and 12.3.2.1 “Shielding, Design Objectives”. The evaluation will ensure either there is no impact to established radiological zoning and equipment qualifications or a change the VEGP 3&4 licensing basis is required.

Changes to Nuclear Island ITAAC

The proposed changes revise ITAAC in COL Appendix C to consolidate duplicative ITAAC requirements and allow reconciliation of thickness deviations from COL Appendix C Table 3.3-1 in the reconciliation reports for NI buildings. The proposed changes do not eliminate any Design Commitment for the NI buildings. The proposed changes do not eliminate any requirement for verifying structural and radiation shielding functions of the NI structural buildings. For each proposed ITAAC consolidation, the associated UFSAR design information is consistent with the current plant design, and no structure, system, or component (SSC), design function, or analysis, as described in the UFSAR, is affected by the proposed changes.

According to the Acceptance Criteria for ITAAC Index Numbers 760, 761, 762, and 763, the reconciliation reports (as-built building reports) are required for each NI building. The as-built building reports reconcile design changes and site specific nonconformances between the as-designed and as-built building structures. The NI construction deviations from the thicknesses and tolerances specified in COL Appendix C Table 3.3-1 are individually evaluated through the nonconformance processes and are included in the as-built building

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reports as part of the nonconformance reconciliation. The reconciliation reports include evaluations of the radiation shielding function of as-built thicknesses which deviate in a negative direction. Therefore, the information in the thickness report is covered by the reconciliation report. The removal of the thickness report Acceptance Criteria for NI does not reduce the scope or intent of the ITAAC.

Changes to Annex Building ITAAC

The Acceptance Criteria of ITAAC Number 768 is to verify the structural function of the as-built annex building structure through the verification of wall thickness. Similarly, the Acceptance Criteria of ITAAC Number 781 is to verify the radiation shielding function of the as-built annex building structure through the verification of wall thickness. The information provided in the annex building thickness report required by ITAAC Index Number 781 is duplicative with the information in the thickness report required by ITAAC Index Number 768. Therefore, it is acceptable to consolidate ITAAC Index Number 781 into ITAAC Index Number 768.

The proposed change would revise ITAAC 768 Acceptance Criteria to clarify that the annex building thickness report will include evaluations of thickness deviations identified during construction and demonstrate that as-built structures will withstand design basis loads without loss of structural integrity and without impacting established radiological zoning and equipment qualification.

The proposed change would add a note in COL Appendix C Table 3.3-1 to allow evaluation of thickness deviations in the annex building thickness report. Annex building thickness deviations are evaluated by the structural group to confirm that there is no impact to the structural function. Thickness deviations in the negative direction are also evaluated by the radiation shielding group to confirm that there is no impact to established radiological zoning and equipment qualification in the annex building as-built walls and floors. The thickness reports for the annex building summarize N&D Reports related to thickness deviations which were dispositioned prior to the thickness report completion and demonstrate there is no cumulative impact on the structural or shielding functions.

The proposed changes revise COL Appendix C ITAAC to consolidate duplicative requirements and allow evaluations of thickness deviations from COL Appendix C Table 3.3-1 thickness requirements. The proposed changes do not eliminate any requirement for verifying structural or radiation shielding functions of the annex building. The proposed changes do not alter the existing design requirements for the annex building as described in UFSAR Subsection 3.7.2.8.1.

Changes to Turbine Building ITAAC

The Acceptance Criteria of ITAAC Number 769 is to verify the structural function of the as-built turbine building through the verification of wall thickness. The proposed change will revise the ITAAC Acceptance Criteria to clarify that the turbine building thickness report will include evaluations of thickness deviations identified during construction and demonstrate that the as-built structure will withstand the design basis loads without loss of structural integrity.

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The amendment will add a note in COL Appendix C Table 3.3-1 to allow evaluation of thickness deviations in the turbine building thickness report. Turbine building thickness deviations are evaluated by the structural group to confirm that there is no impact to the structural function. The thickness reports for the turbine building summarize N&D Reports related to thickness deviations which were dispositioned prior to the thickness report completion and demonstrate there is no cumulative impact on the structural function.

The proposed changes revise COL Appendix C ITAAC to allow evaluations of thickness deviations from COL Appendix C Table 3.3-1 thickness requirements. The proposed changes do not eliminate any requirement for verifying the structural function of the turbine building. The proposed changes do not alter the existing design requirements for the turbine building as described in UFSAR subsection 3.7.2.8.3.

Changes to Radwaste Building ITAAC

The proposed radwaste building ITAAC change clarifies that the thickness report also includes the evaluations of thickness deviations identified during construction and demonstrates there is no impact to established radiological zoning and equipment qualification. The radwaste building is a non-seismic steel framed structure designed in accordance with the Uniform Building Code (UBC). The radwaste building contains facilities for the handling and storage of plant wastes. Shielding is provided as necessary for the waste storage areas in the radwaste building to meet the radiation zone and access requirements. As discussed in the technical justification for NI changes, construction deviations are evaluated in accordance with N&D process which applies to thickness deviations from ITAAC Index Number 782 in the radwaste building. The thickness deviation in the positive direction does not impact the radiation shielding. Any thickness deviation in the negative direction is dispositioned by the cognizant engineering group to confirm that there is no impact to established radiological zoning and equipment qualification in the as-built walls. The thickness report for the radwaste building summarizes N&D Reports that are related to thickness deviations in the waste accumulation room which were dispositioned prior to the thickness report and were demonstrated to have no impact on radiation shielding. The proposed deletion of "minimum" in front of the wall thickness from the Acceptance Criteria is consistent with the proposed change of allowing deviation evaluations in the thickness report in ITAAC Index Number 782.

The proposed changes do not impact Design Commitments for the radwaste building, because they do not eliminate any requirement for verifying radiation shielding of the radwaste building accumulation room. The proposed change does not change the current plant design, or affect SSCs, design function, or analysis, as described in the UFSAR.

Summary

The proposed changes to ITAAC continue to 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. These ITAAC consolidations and clarifications do not make 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 technical changes to plant-specific ITAAC line items.

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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 changes do 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 changes do not impact an SSC, function or feature used in the prevention or mitigation of accidents or their safety or design analyses. The changes do 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 changes do not involve a change to a fission product barrier. The changes do not result in a new failure mode, malfunction, or sequence of events that could affect safety. The 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.

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

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

The proposed changes associated with this license amendment request do 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 should 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 changes. 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 52.80(a) requires, in the relevant part, that the application must contain the proposed inspections, tests, and analyses that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the ITAAC are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations. The proposed changes to ITAAC continue to comply with the requirements of 10 CFR Part 52

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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. These ITAAC consolidations and clarifications do not make technical changes to the COL Appendix C (and plant-specific Tier 1) design descriptions, tables, and figures.

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 Part 52, Appendix D, Section VIII.B.5.a allows an applicant or licensee who references this appendix to depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2* information, or the Technical Specifications, or requires a license amendment under paragraphs B.5.b or B.5.C of the section. Potential impacts to Tier 1, Tier 2, or Tier 2* information are evaluated using this process. Since the proposed changes include changes to Tier 1 information, NRC approval is required. The proposed changes will continue to comply with the processes for changes and departures described in 10 CFR 52, Appendix D, Section VIII. All nonconformances will be reviewed and evaluated to determine if changes to Tier 1, Tier 2 or Tier 2* information are required.

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 NI and the seismic Category II portion of the annex building and turbine building first bay continue to meet the design codes committed to in the UFSAR Subsections 3.3.2.3 and 3.8. 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 NI and the seismic Category II portion of the annex building and turbine building first bay. The proposed changes do not affect the quality assurance program and compliance with GDC 1 is maintained.

10 CFR 50, Appendix A, GDC 2, Design Bases for Protection Against Natural Phenomena, requires that SSCs important to safety shall be designed to withstand the

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effects of natural phenomena such as earthquakes, tornados, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their safety functions. The proposed change to NI structure ITAAC does not require revision to any of the seismic analyses for the NI or the containment internal structures. The design of the NI structures continues to comply with the ACI 349-01 code. The proposed change to clarify the annex building ITAAC does not involve a change to the design of the annex building as described in the UFSAR. The proposed change does not require a revision to the seismic analyses for the seismic Category II area of the annex building. The proposed changes do not involve a reduction in the ability of any structure, system or component to withstand the effects of natural phenomena; and compliance with GDC 2 is maintained.

10 CFR 50, Appendix A, GDC 3, Fire Protection, requires that SSCs important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. The proposed change does not involve a design basis change or change to the fire areas or zones described in the UFSAR. The proposed ITAAC change does not adversely affect plant fire protection features protecting SSCs important to safety. Therefore, the requirements of GDC 3 continue to be met.

10 CFR 50, Appendix A, GDC 4, Environmental and Dynamic Effects Design Bases, requires SSCs important to safety be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. The changes to the NI ITAAC are consolidation changes only, and do not involve a change to the design of the NI. The changes to annex building ITAAC are also consolidations and do not involve a change to the design of the annex building. The annex building does not house SSCs important to safety. However, the annex building is designed such that the portion of the building adjacent to the auxiliary building maintains structural integrity during a safe shutdown earthquake. The proposed change to the annex building ITAAC does not impact the seismic analysis of the Seismic Category II portion of the annex building. Therefore, the design continues to comply with GDC 4.

10 CFR 50, Appendix A, GDC 19, Control Room, requires a control room be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. GDC 19 also requires adequate radiation protection be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. The proposed changes to the NI ITAAC are consolidation changes only and do not involve a change to the design of the NI. The annex building provides the security-controlled access path to the main control room. The change to the annex building ITAAC does not involve a change to the design of the annex building, shielding for the annex building, or the normal operation or post-accident radiation zoning of the annex building. The proposed change to the annex building does not affect the radiation zone of the security-controlled access path to the main control room because the floor was not credited with radiation shielding in development of the predicted radiation zoning for the security

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entrance shown in UFSAR Figure 12.3-2. Therefore, the design continues to comply with GDC 19.

4.2 Precedent

None.

4.3 No Significant Hazards Consideration Analysis

The proposed changes revise COL Appendix C (and plant-specific Tier 1 information) to consolidate duplicative ITAAC Acceptance Criteria for certain structures and clarify that evaluations of thickness deviations will be included in the reconciliation and thickness reports described in the ITAAC or COL Appendix C Table 3.3-1.

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*," 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 do 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 changes to NI, annex building, turbine building and Waste Accumulation Room ITAAC involves no design changes or technical reanalysis. The changes consolidate duplicative ITAAC Acceptance Criteria and clarify the evaluations of thickness deviations.

Therefore, the requested 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 do not affect the operation of any safety-related SSC relied upon to mitigate design basis accidents. The proposed changes to the NI, annex building, turbine building, and Waste Accumulation Room ITAAC do not involve a change to design or reanalysis. The proposed changes do not affect the structural integrity or seismic response of the NI and the seismic Category II portion of the annex building and turbine building first bay. The design of these structures continues to meet the requirements of 10 CFR 50 Appendix A General Design Criterion 2, Design Bases for Protection Against Natural Phenomena. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

4.3.3 Does the proposed amendment involve a significant reduction in a margin

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of safety?

Response: No

The proposed changes do not affect existing safety margins. The proposed changes to NI, annex building, turbine building, and Waste Accumulation Room ITAAC do not involve a change to the design or reanalysis of the structures. The proposed changes do not involve a reduction to the structural integrity of the seismic Category I or II portions of building structures. The NI and the seismic Category II portion of the annex building and turbine building first bay will continue to support their design functions. No margin to the specified acceptable fuel design limits is affected by the proposed changes.

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 changes.

The proposed changes affect the COL Appendix C and associated plant-specific Tier 1 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 changes do 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 changes do not

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affect the structure or functionality of any design feature or operational arrangements credited with controlling the release of effluents during plant operation. The proposed changes to NI, annex building, turbine building, and Waste Accumulation Room ITAAC do 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 to the NI, annex building, turbine building, and Waste Accumulation Room ITAAC do not involve a change to any systems or structures 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 changes to the NI, annex building, turbine building, and Waste Accumulation Room ITAAC revises COL Appendix C (and plant-specific Tier 1 information) to consolidate duplicative ITAAC Acceptance Criteria for certain structures and clarify that evaluations of thickness deviations are included in the reconciliation and thickness reports described in the ITAAC. This change does not involve an increase in individual or cumulative occupational radiation exposure because the proposed change does not adversely affect radiation shielding analyses. There are no systems in the control support area or the surrounding rooms that normally contain radioactive material, and adequate shielding from normal radiation sources is provided by the shield building and shield walls between the radiologically controlled and non-radiologically controlled areas of the auxiliary building. Therefore, the requested amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

6. REFERENCES

None.

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Southern Nuclear Operating Company

ND-19-1023

Enclosure 5

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Revised Exemption Request:

Consolidation of Structural Building ITAAC

(LAR-19-005R1)

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(Enclosure 5 consists of 9 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 COL Appendix C (and corresponding plant-specific Tier 1) information. The changes include consolidating Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for structural buildings and clarifying as-built deviations in wall thickness will be addressed by the appropriate structural building 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 proposed changes, as described below.

Table 3.3-1

- Add Note 15 to clarify that reconciliation of construction deviations in the nuclear island structures from the thickness and tolerances specified in this table is included in the reconciliation reports, and demonstrate that the as-built structures will withstand design basis loads without loss of structural integrity or safety functions and without impacting compliance with GDC 19, established radiological zoning or equipment qualification in accordance with ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, or 3.3.00.02a.i.d. Construction deviations from the thicknesses and tolerances specified in COL Appendix C Table 3.3-1 are individually evaluated through the nonconformance processes and are included in the as-built building reports as part of the nonconformance reconciliation.
- Add Note 16 to clarify that the construction deviations in the annex building from the thickness and tolerances specified in this table are evaluated in the thickness report to demonstrate that the as-built structures will withstand design basis loads without loss of structural integrity or safety functions and without impacting compliance with GDC 19, established radiological zoning or equipment qualification in accordance with ITAAC 3.3.00.02a.ii.e. Construction deviations from the thicknesses and tolerances specified in COL Appendix C Table 3.3-1 are individually evaluated through the nonconformance processes and are included in the as-built building reports as part of the nonconformance reconciliation.
- Add Note 17 to clarify that the construction deviations of the turbine building structural thicknesses from the table are evaluated in the thickness report which demonstrates that the structural function specified in the associated ITAAC is met.
- Add Note 18 to clarify that nonconformances from the thicknesses and tolerances specified in Table 3.3-1 (i.e. out of tolerance conditions) are addressed under the 10 CFR Part 50, Appendix B process and are subsequently screened in accordance with the 10 CFR Part 52, Appendix D, Section VIII process or a 10 CFR 50.59-like process, to ensure that the licensing basis is adequately maintained. Construction deviations will continue to be assessed against licensing basis requirements and will be addressed in accordance with licensee procedures and regulatory requirements and, if applicable, a license amendment will be obtained prior to implementation of the change.

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Table 3.3-6, ITAAC Number 3.3.00.02a.i.a, containment internal structures

- Add the shielding attribute in “Design Commitment. ”
- Add the requirement for analysis of deviations due to as-built conditions for radiation shielding in “Inspections, Tests and Analyses.”
- Add requirement for verification of no impact to established radiological zoning and equipment qualification in the reconciliation report in “Acceptance Criteria.”
- Clarify in “Acceptance Criteria” that the thickness deviations from Table 3.3-1 are reconciled in the reconciliation report.

Table 3.3-6 ITAAC Number 3.3.00.02a.i.b, shield building

- Add the shielding attribute in “Design Commitment.”
- Add the requirement for analysis of deviations due to as-built conditions for radiation shielding in “Inspections, Tests and Analyses.”
- Add requirement for verification of no impact to established radiological zoning and equipment qualification in the reconciliation report in “Acceptance Criteria.”
- Clarify in “Acceptance Criteria” that the thickness deviations from Table 3.3-1 are reconciled in the reconciliation report.

Table 3.3-6 ITAAC Number 3.3.00.02a.i.c, auxiliary building (non-radiologically controlled)

- Add the shielding attribute in “Design Commitment.”
- Add the requirement for analysis of deviations due to as-built conditions for radiation shielding in “Inspections, Tests and Analyses.”
- Add requirement for verification of no impact to established radiological zoning and equipment qualification in the reconciliation report in “Acceptance Criteria.”
- Clarify in “Acceptance Criteria” that the thickness deviations from Table 3.3-1 are reconciled in the reconciliation report.

Table 3.3-6 ITAAC Number 3.3.00.02a.i.d, auxiliary building (radiologically controlled)

- Add the shielding attribute in “Design Commitment.”
- Add the requirement for analysis of deviations due to as-built conditions for radiation shielding in “Inspections, Tests and Analyses.”
- Add requirement of verification of no impact to established radiological zoning and equipment qualification in the reconciliation report in “Acceptance Criteria.”
- Clarify in “Acceptance Criteria” that the thickness deviations from Table 3.3-1 are reconciled in the reconciliation report.

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Table 3.3-6 ITAAC Number 3.3.00.02a.ii.a, containment internal structures

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC No. 3.3.00.02a.ii.b, shield building structures

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.02a.ii.c, auxiliary building (non-radiologically controlled)

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.02a.ii.d, auxiliary building (radiologically controlled)

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.02a.ii.e, annex building

- Add the shielding attribute in “Design Commitment.”
- Modify “Acceptance Criteria” to clarify that the thickness report also includes evaluations of thickness deviations identified during construction and demonstrates that the as-built structures will withstand the design basis loads without loss of structural integrity and that there is no impact to established radiological zoning and equipment qualification.

Table 3.3-6 ITAAC Number 3.3.00.02a.ii.f, turbine building

- Modify “Acceptance Criteria” to clarify that the thickness report also includes evaluations of thickness deviations identified during construction and demonstrates that the as-built structures will withstand the design basis loads without loss of structural integrity.

Table 3.3-6 ITAAC Number 3.3.00.03a, containment internal structures

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.03b, shield building

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.03c, auxiliary building (non-radiologically controlled)

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.03d, auxiliary building (radiologically controlled)

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

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Table 3.3-6 ITAAC Number 3.3.00.04a, annex building

- Delete the ITAAC by identifying it as “Not used per Amendment No. [XXX].”

Table 3.3-6 ITAAC Number 3.3.00.04b, waste accumulation room in the radwaste building

- Modify “Acceptance Criteria” to clarify that the thickness report also includes evaluations of thickness deviations identified during construction and demonstrates there is no impact to established radiological zoning and equipment qualification.
- Delete “minimum” in front of the wall thickness from the “Acceptance Criteria.”

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 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.
SNC proposes to revise COL Appendix C (and plant-specific Tier 1 information) to consolidate duplicative ITAAC Acceptance Criteria for certain structures and clarify the evaluations of thickness deviations in the reconciliation and thickness reports described in ITAAC. 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 consolidating, removing, and clarifying NI, annex building, turbine building, and radwaste building ITAAC.

The proposed changes to NI, annex building, turbine building, and radwaste building ITAAC presented in plant-specific Tier 1 are at a level of detail that is consistent with the information currently provided therein. The proposed changes neither adversely impact the ability to meet the design functions of the components, nor involve a significant decrease in the level of safety provided by the components. The proposed changes to information in plant-specific Tier 1 continue to provide the detail necessary to implement the corresponding ITAAC.

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 structural building 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

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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 NI, annex building, turbine building, and radwaste building ITAAC will not impact the ability of the structures, systems, or components (SSCs) to perform their design functions. The SSCs will be constructed in accordance with the design certification as verified by plant-specific Tier 1 Table 3.3-6 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 requested exemption from the requirements of 10 CFR 52, Appendix D, Section III.B

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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 consolidation and clarification changes to NI, annex building, turbine building, and radwaste building ITAAC ensure that the SSCs related to this amendment are constructed in accordance with the design certification as verified by plant-specific Tier 1 Table 3.3-6 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 in this area and the understanding that these changes are not related to system functions, 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

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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 consolidation of duplicative ITAAC Acceptance Criteria for certain structures, and clarify that evaluations of thickness deviations will be included in the reconciliation and thickness reports. The changes to NI, annex building, turbine building, and radwaste building ITAAC will not impact the functional capabilities of the structures. Because the proposed changes 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 these changes and the level of safety provided by the current SSCs will be unchanged.

The proposed changes require revisions to plant-specific Tier 1 information; there is no technical design change or plant function change associated with this exemption. Because the proposed changes 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 changes 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.

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8.0 CONCLUSION

The proposed changes to DCD Tier 1 are necessary to consolidate duplicative ITAAC Acceptance Criteria for certain structures and clarify that evaluations of thickness deviations will be included in the reconciliation and thickness reports. 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.

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Southern Nuclear Operating Company

ND-19-1023

Enclosure 6

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Revised Proposed Changes to the Licensing Basis

Documents (LAR-19-005R1)

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Note:
Added text is shown as bold **Blue Underline**
Deleted text is shown as bold **~~Red Strikethrough~~**
Revised added text is shown as bold **Violet Underline**
Revised deleted text is shown as **~~Green Strikethrough~~**

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

(Enclosure 6 consists of 9 pages, including this cover page)

Revise COL Appendix C Table 3.3-1, and corresponding plant-specific Tier 1 Table 3.3-1, "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," as shown below.

Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building[1]				
Wall or Section Description	Column Lines[7]	Floor Elevation or Elevation Range[7][8]	Concrete Thickness[2][3][4][5][9][18]	Applicable Radiation Shielding Wall (Yes/No)
Containment Building Internal Structure[15]				
***				

* * *

15. Reconciliation of construction deviations in the nuclear island structures from the thickness and tolerances specified in this table is included in the reconciliation reports, and demonstrate that the as-built structures will withstand design basis loads without loss of structural integrity or safety functions and without ~~loss of shielding functions~~impacting compliance with GDC 19, established radiological zoning or equipment qualification in accordance with ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, or 3.3.00.02a.i.d.

16. Construction deviations in the annex building from the thickness and tolerances specified in this table are evaluated in the thickness report to demonstrate that the as-built structures will withstand design basis loads without loss of structural integrity or safety functions and without ~~loss of shielding functions~~impacting compliance with GDC 19, established radiological zoning or equipment qualification ~~during normal operation~~ in accordance with ITAAC 3.3.00.02a.ii.e.

17. Construction deviations in the turbine building from the thickness and tolerances specified in this table are evaluated in the thickness report to demonstrate that the as-built structures will withstand design basis loads without loss of structural integrity or safety functions in accordance with ITAAC 3.3.00.02a.ii.f.

18. Nonconformances from the thicknesses and tolerances specified in Table 3.3-1 (i.e. out of tolerance conditions) are addressed under the 10 CFR Part 50, Appendix B process and subsequently are screened in accordance with the 10 CFR Part 52, Appendix D, Section VIII process or a 10 CFR 50.59-like process, to ensure that the licensing basis is adequately maintained. Construction deviations will continue to be assessed against the licensing basis requirements and will be addressed in accordance with licensee procedures and regulatory requirements and, if applicable, a license amendment will be obtained prior to implementation of the change.

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Table 3.3-1 (cont.) Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building[1]				
Wall or Section Description	**Column Lines[7]**	**Floor Elevation or Elevation Range[7][8]**	**Concrete Thickness[2][3][4][5][9][18]**	**Applicable Radiation Shielding Wall (Yes/No)**
***				
Shield Building[6][15]				
***				
Auxiliary Building Walls/Floors Radiologically Controlled[15]				
***				
Auxiliary Building Walls/Floors Non-Radiologically Controlled[15]				
***				
Annex Building[16]				
***				
Turbine Building[17]				
***				

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Revise COL Appendix C Table 3.3-6, and corresponding plant-specific Tier 1 Table 3.3-6, "Inspections, Tests, Analyses, and Acceptance Criteria," as shown below.

Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
***				
760	3.3.00.02a.i.a	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions. **3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.**	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads**, and for radiation shielding**.	i.a) A report exists which reconciles deviations during construction**, including Table 3.3-1 wall and floor thicknesses,** and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions**, and ~~that there is no loss of the shielding function~~without impacting established radiological zoning and equipment qualification**.
761	3.3.00.02a.i.b	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions. **3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.**	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads**, and for radiation shielding**.	i.b) A report exists which reconciles deviations during construction**, including Table 3.3-1 wall and floor thicknesses,** and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions**, and ~~that there is no loss of the shielding function~~without impacting established radiological zoning and equipment qualification**.

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Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
762	3.3.00.02a.i.c	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions. **3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.**	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads**, and for radiation shielding**.	i.c) A report exists which reconciles deviations during construction**, including Table 3.3-1 wall and floor thicknesses,** and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions**, and ~~that there is no loss of the shielding function~~without impacting established radiological zoning and equipment qualification**.
763	3.3.00.02a.i.d	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions. **3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.**	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads**, and for radiation shielding**.	i.d) A report exists which reconciles deviations during construction**, including Table 3.3-1 wall and floor thicknesses,** and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions**, and ~~that there is no loss of the shielding function~~without impacting established radiological zoning and equipment qualification**.

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Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
764	3.3.00.02a.ii.a	Not used per Amendment No. [XXX] ~~2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.~~	~~ii) An inspection of the as-built concrete thickness will be performed.~~	~~ii.a) A report exists that concludes that the containment internal structures as-built concrete thicknesses conform to the building sections defined in Table 3.3-1.~~
765	3.3.00.02a.ii.b	Not used per Amendment No. [XXX] ~~2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.~~	~~ii) An inspection of the as-built concrete thickness will be performed.~~	~~ii.b) A report exists that concludes that the as-built concrete thicknesses of the shield building sections conform to the building sections defined in Table 3.3-1.~~
766	3.3.00.02a.ii.c	Not used per Amendment No. [XXX] ~~2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.~~	~~ii) An inspection of the as-built concrete thickness will be performed.~~	~~ii.c) A report exists that concludes that as-built concrete thicknesses of the non-radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1~~.
767	3.3.00.02a.ii.d	Not used per Amendment No. [XXX] ~~2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.~~	~~ii) An inspection of the as-built concrete thickness will be performed~~.	~~ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.~~

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Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
768	3.3.00.02a.ii.e	**2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.** **4.a) Walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.**	**ii) An inspection of the as-built concrete thickness will be performed.**	**ii.e) A report exists that concludes that the as-built concrete thicknesses of the annex building sections conform with the building sections defined in Table 3.3-1, except for designed openings or penetrations, or the report documents an evaluation of thickness deviations identified during construction and demonstrates that the as-built structures will withstand the design basis loads without loss of structural integrity and ~~that there is no loss of the shielding function~~without impacting established radiological zoning and equipment qualification.**
769	3.3.00.02a.ii.f	**2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.**	**ii) An inspection of the as-built concrete thickness will be performed.**	**ii.f) A report exists that concludes that the as-built concrete thicknesses of the turbine building sections conform to the building sections defined in Table 3.3-1, except for designed openings or penetrations, or the report documents an evaluation of thickness deviations identified during construction and demonstrates that the as-built structures will withstand the design basis loads without loss of structural integrity.**
* * *				

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Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
777	3.3.00.03a	Not used per Amendment No. [XXX] ~~3. Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.~~	~~Inspection of the as-built nuclear island structures wall and floor thicknesses will be performed.~~	~~a) A report exists and concludes that the shield walls and floors of the containment internal structures as defined in Table 3.3-1, except for designed openings or penetrations, are consistent with the concrete wall thicknesses provided in Table 3.3-1.~~
778	3.3.00.03b	Not used per Amendment No. [XXX] ~~3. Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.~~	~~Inspection of the as-built nuclear island structures wall and floor thicknesses will be performed.~~	~~b) A report exists and concludes that the shield walls of the shield building structures as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.~~
779	3.3.00.03c	Not used per Amendment No. [XXX] ~~3. Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.~~	~~Inspection of the as-built nuclear island structures wall and floor thicknesses will be performed.~~	~~c) A report exists and concludes that the shield walls and floors of the non-radiologically controlled area of the auxiliary building as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.~~
780	3.3.00.03d	Not used per Amendment No. [XXX] ~~3. Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.~~	~~Inspection of the as-built nuclear island structures wall and floor thicknesses will be performed.~~	~~d) A report exists and concludes that the shield walls and floors of the radiologically controlled area of the auxiliary building as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.~~

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Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
781	3.3.00.04a	Not used per Amendment No. [XXX] ~~4.a) Walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.~~	~~Inspection of the as-built annex building wall and floor thicknesses will be performed.~~	~~A report exists and concludes that the shield walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations are consistent with the minimum concrete wall thicknesses provided in Table 3.3-1.~~
782	3.3.00.04b	4.b) Walls of the waste accumulation room in the radwaste building except for designed openings or penetrations provide shielding during normal operations.	Inspection of the as-built radwaste building wall thicknesses will be performed.	A report exists and concludes that the shield walls of the waste accumulation room in the radwaste building except for designed openings or penetrations are consistent with the ~~minimum~~ concrete wall thicknesses of 1'-4", and a ~~minimum~~ concrete wall thickness of 1'-8" near the radwaste bunkers, or the report documents an evaluation of thickness deviations identified during construction and demonstrates there is no ~~loss of the shielding function~~impact to established radiological zoning and equipment qualification.
* * *				

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Southern Nuclear Operating Company

ND-19-1023

Enclosure 7

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Response to Draft Request for Additional Information (LAR-19-005R1)

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(Enclosure 7 consists of 9 pages, including this cover page)

Response to Draft Requests for Additional Information

The NRC issued three DRAFT Requests for Additional Information (RAIs) related to Southern Nuclear Operating Company's (SNC's) License Amendment Request (LAR) 2019-005. The RAIs were issued on July 9, 2019, August 1, 2019 and September 10, 2019 and were individually discussed during public meetings on July 10, 2019, August 15, 2019 and September 12, 2019.

The RAIs are copied in their entirety followed by SNC's response to the requested clarification and questions.

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Request for Additional Information
Vogtle Nuclear Site, Units 3 and 4, Dockets 52-0025 and 52-0026
Southern Nuclear Operating Co.
Docket Nos. 52-0025 and 52-0026
Section: 14.03.08 - Radiation Protection Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: Tier 1
[July 9, 2019]

Background

In LAR-19-005, the licensee requests changes to COL Appendix C and Tier 1, Table 3.3-1, "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," and Table 3.3-6, "Inspections, Tests, Analyses, and Acceptance Criteria." The proposed changes include the allowance of construction deviations from the thicknesses of radiation shielding barriers in the nuclear island structures and annex building if the changes can be made without a "loss of shielding function."

Issue

The proposed wording in Table 3.3-1, Footnotes 15 and 16 and the Table 3.3-6 ITAAC acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, and 3.3.00.04b, are not clear. The proposed language does not specify if the radiation attenuation factor is reduced (or otherwise clarify whether an acceptable level of radiation attenuation is retained). Specifically, it is unclear to the staff what amount of radiation shielding reduction (and resulting radiation attenuation loss) can be made without being considered a loss in radiation shielding function. In addition, the radiological dose impacts and consequences of changes in radiation barrier thickness vary based on the radiation source and the dose reduction needs on the other side of the barrier. The staff is concerned that the current language will allow reductions in radiation attenuation that may not be acceptable without adding concrete density or by adding an additional shielding material to the wall.

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Clarification

Please clarify or revise, as appropriate, the Table 3.3-1, Footnotes 15 and 16 and the acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, and 3.3.00.04b, in Table 3.3-6 to provide a criteria which ensures that radiation attenuation remains appropriate and the facility has been constructed and will be operated in accordance with the design and the relevant requirements.

Regulatory Basis

10 CFR 50, Appendix A, General Design Criteria (GDC) 61, requires that the fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed (1) with a capability to permit appropriate periodic inspection and testing of components important to safety (2) with suitable shielding for radiation protection, and (3) with appropriate containment, confinement, and filtering systems.

10 CFR 52.80(a) requires that the application must contain the proposed inspections, tests, and analyses, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations.

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Request for Additional Information
Vogtle Nuclear Site, Units 3 and 4, Dockets 52-0025 and 52-0026
Southern Nuclear Operating Co.
Docket Nos. 52-0025 and 52-0026
Section: 14.03.08 - Radiation Protection Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: Tier 1
[August 1, 2019]

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Background

In LAR-19-005, the licensee requests changes to COL Appendix C and Tier 1, Table 3.3-1, "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," and Table 3.3-6, "Inspections, Tests, Analyses, and Acceptance Criteria." The proposed changes include the allowance of construction deviations from the thicknesses of radiation shielding barriers and the structural wall thickness in the nuclear island structures and annex building, if the changes can be made without a "loss of shielding function" and the structures will withstand design bases loads without loss of structural integrity or safety-related function.

Issue

The proposed wording in Table 3.3-1, Footnotes 15, 16, and 17, and the Table 3.3-6 ITAAC acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, 3.3.00.02a.ii.f, and 3.3.00.04b do not provide the clarity needed to assure that the proposed changes are designed and implemented consistently. As currently proposed, the criteria for "loss of shielding function" are unclear with regards to radiation shielding functionality and aggregate impacts (e.g., occupational dose, public dose, environmental qualification, SSC degradation, control room dose, vital area doses, and, as applicable, equipment survivability). Additionally, the methodologies should be consistent with those used in the design certification. Similarly, for structures the criteria to assess the resulting structural integrity is unclear and it is indeterminate whether the applicant's proposal accounts for the global impacts of all proposed changes so that the changes do not result in a loss of structural integrity or safety-related functions.

The footnotes and associated ITAAC acceptance criteria should clearly define the radiation shielding functional requirements to be met when the licensee deviates from the thicknesses and tolerances that are currently in Table 3.3-1.

For the structural reconciliation of construction deviations mentioned in footnotes 15, 16, and 17 of the LAR enclosure 3, the staff is unclear about the bases used to justify deviations from the Tier 1 values, including details on the evaluation method and acceptance criteria. The staff did not find the supporting information in Tier 2 that provides the methodology to be used; nor did the staff find the associated acceptance criteria.

Question

Please clarify or revise, as appropriate, the Table 3.3-1 Footnotes 15, 16, and 17 and the acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, 3.3.00.02a.ii.f, and 3.3.00.04b in Table 3.3-6 to provide criteria that ensures that radiation shielding function and structural integrity remain appropriate and the facility has been constructed and will be operated in accordance with the design and all relevant requirements.

Regulatory Basis

10 CFR Part 50, Appendix A, General Design Criterion (GDC) 2, "Design Bases for Protection against Natural Phenomena," requires that SSCs important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions.

GDC 4, "Environmental and Dynamic Effects Design Bases," requires that SSCs important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing and postulated accidents, including loss-of-coolant accidents.

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GDC 61, requires that the fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed (1) with a capability to permit appropriate periodic inspection and testing of components important to safety (2) with suitable shielding for radiation protection, and (3) with appropriate containment, confinement, and filtering systems.

10 CFR 52.80(a) requires that the application must contain the proposed inspections, tests, and analyses, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations.

Draft Request for Additional Information
Vogtle Nuclear Site, Units 3 and 4, Dockets 52-0025 and 52-0026
Southern Nuclear Operating Co.
Docket Nos. 52-0025 and 52-0026
Section: 14.03.08 - Radiation Protection Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: Tier 1
September 5, 2019

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Background

In LAR-19-005, the licensee requests changes to COL Appendix C and Tier 1, Table 3.3-1, "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," and Table 3.3-6, "Inspections, Tests, Analyses, and Acceptance Criteria." The proposed changes include the allowance of construction deviations from the thicknesses of radiation shielding barriers and the structural wall thickness in the nuclear island structures and annex building, if the changes "conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions, and that there is no loss of the shielding function."

Issue

At this time, the proposed changes lack clarity regarding how non-conformances and deviations (N&Ds) from Table 3.3-1 will be evaluated to ensure the changes "conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions, and that there is no loss of the shielding function."

Question

Please clarify that N&Ds from the thicknesses and tolerances specified in Table 3.3-1 (i.e. out of tolerance conditions) are addressed under the 10 CFR Part 50, Appendix B process and subsequently are screened in accordance with the 10 CFR Part 52, Appendix D, Section VIII

process or a 10 CFR 50.59-like process, to ensure that the licensing basis is adequately maintained. Please provide revised text to clarify how these processes will be implemented.

In addition, the language in VEGP UFSAR Tier 1, Table 3.3-6, appears to conflict with the stated purposes of radiation shielding (for normal operation and post-accident conditions) as described in several sections of the Tier 2 UFSAR and the resulting numerical values in Tier 1, Table 3.3-1. Please provide revised UFSAR Tier 1 text to resolve any discrepancies between the proposed changes and the existing statements in UFSAR Tier 1, Table 3.3-6, Acceptance Criteria, and UFSAR Tier 2.

Regulatory Basis

10 CFR Part 50, Appendix A, General Design Criterion (GDC) 2, "Design Bases for Protection against Natural Phenomena," requires that SSCs important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without loss of capability to perform their safety functions. GDC 2 further requires that "[t]he design bases for these structures, systems, and components shall reflect: (1) Appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated, (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena and (3) the importance of the safety function to be performed."
10 CFR Part 52, Appendix D, Section VIII, "Processes for Changes and Departures," describes the process for changes to various Tiers of information in COLs referencing Part 52, Appendix D.

GDC 4, "Environmental and Dynamic Effects Design Bases," requires that structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.

GDC 19, "Control room," requires a control room be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. Equipment at appropriate locations outside the control room shall be provided (1) with a design capability for prompt hot shutdown of the reactor, including necessary instrumentation and controls to maintain the unit in

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a safe condition during hot shutdown, and (2) with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures.

GDC 61, “Fuel storage and handling and radioactivity control,” requires, in part, that the fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions, including suitable shielding for radiation protection.

10 CFR 52.80(a) requires, in the relevant part, that the application must contain the proposed inspections, tests, and analyses that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations.

SNC Responses

Clarification

Please clarify or revise, as appropriate, the Table 3.3-1, Footnotes 15 and 16 and the acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, and 3.3.00.04b, in Table 3.3-6 to provide a criteria which ensures that radiation attenuation remains appropriate and the facility has been constructed and will be operated in accordance with the design and the relevant requirements.

Response

SNC is revising the license amendment request enclosed in letter SNC letter number ND-19-0162 dated March 29, 2019 (Accession No. ML19088A274). The revision provides clarifications to the previously proposed ITAAC acceptance criteria and the generic notes to Table 3.3-1 to provide assurance that the facility has been constructed and will be operated in accordance with the design and the relevant requirements. The revised ITAAC specifies that the acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, and 3.3.00.04b in Table 3.3-6 includes the phrase “without impacting established radiological zoning and equipment qualification.”

The revised acceptance criteria will require SNC to demonstrate that radiological zoning and equipment qualification requirements are met, by establishing acceptance criteria that encompasses radiation shielding functionality and aggregate impacts (i.e., occupational and public dose, environmental qualification) and is consistent with the Tier 2 design criteria (e.g., UFSAR sections 3.11.4 “Estimated Radiation and Chemical Environment,” 3D.5.1.2 “Radiation Dose,” and 12.3.2.1 “Shielding, Design Objectives”).

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Question

Please clarify or revise, as appropriate, the Table 3.3-1 Footnotes 15, 16, and 17 and the acceptance criteria for ITAAC 3.3.00.02a.i.a, 3.3.00.02a.i.b, 3.3.00.02a.i.c, 3.3.00.02a.i.d, 3.3.00.02a.ii.e, 3.3.00.02a.ii.f, and 3.3.00.04b in Table 3.3-6 to provide criteria that ensures that radiation shielding function and structural integrity remain appropriate and the facility has been constructed and will be operated in accordance with the design and all relevant requirements.

Response

As noted in the response to the clarification (above), SNC is revising the ITAAC acceptance criteria to demonstrate that radiological zoning and equipment qualification requirements are met, by establishing ITAAC acceptance criteria that encompasses radiation shielding functionality and aggregate impacts (i.e., occupational and public dose, environmental qualification) and is consistent with the Tier 2 design criteria (e.g., UFSAR Subsections 3.11.4 “Estimated Radiation and Chemical Environment,” 3D.5.1.2 “Radiation Dose,” and 12.3.2.1 “Shielding, Design Objectives”).

Regarding the criteria to assess structural integrity, the proposed changes in the LAR will require future structural deviations be evaluated to existing design requirements and will continue to satisfy Tier 2 design criteria. Deviations that could potentially affect the design functions of structural buildings or alter compliance with applicable design codes or licensing basis requirements will continue to be evaluated and dispositioned under the 10 CFR 52 Appendix D Section VIII process, as supplemented by License Condition 2.D(13). As noted in the amendment request, structural deviations will continue to comply with applicable concrete and structural codes as defined in the licensing basis. Specifically, the requirements that seismic Category I and II structures comply with applicable design codes, including ACI 349-01 and ANSI/AISC N690-94 will continue to be met. Supplemental Tier 2 requirements described in UFSAR Subsection 3.8.4.4.1, “Seismic Category I Structures,” UFSAR Subsection 3.8.4.5, "Structural Criteria," and the guidance contained in NRC Regulatory Guides 1.69, 1.115, 1.142, and 1.143 as discussed in UFSAR Appendix 1A, “Conformance with Regulatory Guides will also be met.

Question

Please clarify that N&Ds from the thicknesses and tolerances specified in Table 3.3-1 (i.e. out of tolerance conditions) are addressed under the 10 CFR Part 50, Appendix B process and subsequently are screened in accordance with the 10 CFR Part 52, Appendix D, Section VIII process or a 10 CFR 50.59-like process, to ensure that the licensing basis is adequately maintained. Please provide revised text to clarify how these processes will be implemented.

In addition, the language in VEGP UFSAR Tier 1, Table 3.3-6, appears to conflict with the stated purposes of radiation shielding (for normal operation and post-accident conditions) as described in several sections of the Tier 2 UFSAR and the resulting numerical values in Tier 1, Table 3.3-1. Please provide revised UFSAR Tier 1 text to resolve any discrepancies between the proposed changes and the existing statements in UFSAR Tier 1, Table 3.3-6, Acceptance

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Criteria, and UFSAR Tier 2.
Response

SNC is proposing to add an additional note to COL, Appendix C Table 3.3-1 to specify that nonconformances from the thicknesses and tolerances specified in Table 3.3-1 (i.e. out of tolerance conditions) will be addressed under the 10 CFR Part 50, Appendix B process and subsequently are screened in accordance with the 10 CFR Part 52, Appendix D, Section VIII process or a 10 CFR 50.59-like process, to ensure that the licensing basis is adequately maintained. The additional note will also specify that construction deviations will be consistent with the licensing basis and will be addressed in accordance with licensee procedures and regulatory requirements and, if applicable, a license amendment will be obtained prior to implementation of the change.

Regarding the conflict with the stated purposes for radiation shielding (i.e., normal operation and post-accident conditions), the proposed changes in the LAR will continue to require that all nonconformances be reviewed and evaluated for all impacts to licensing basis requirements. For nonconformance's in wall thicknesses, this includes reviewing and verify that all radiation shielding requirements in the VEGP 3&4 UFSAR are met including normal and post-accident conditions.

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