Southern Nuclear

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Docket No.: 52-025
52-026

ND-21-####
10 CFR 50.90
10 CFR 52.63

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Request for License Amendment and Exemption:
Clarification of ITAAC Regarding Invessel Components (LAR-21-001)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests an amendment to the combined licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (License Numbers NPF-91 and NPF-92, respectively).

The requested amendment proposes to depart from plant-specific DCD Tier 1 Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) information, and the corresponding COL Appendix C information, in a way that allows completion of the ITAAC prior to fuel load consistent with the existing facility design (which is not proposed to be changed by this LAR) and the requirements of 10 CFR 52.103(g). These changes reflect the interpretation and understanding discussed during the public telecoms with NRC Staff held August 12, 2021, and August 19, 2021.

Pursuant to 10 CFR 52.99(c)(1), SNC submitted VEGP Unit 3 ITAAC Closure Notification (ICN) for ITAAC 570 ICN via ND-20-0621 dated July 31, 2020 (ML20216A481). Pursuant to 10 CFR 52.99(c)(3), SNC also submitted VEGP Units 3&4 Uncompleted ITAAC Notifications (UINs) for ITAAC 68 UIN via ND-18-0094 dated February 14, 2018 (ML18045A380), ITAAC 75 UIN via ND-19-1333 dated October 31, 2019 (ML19305A429), ITAAC 515 UIN via ND-19-0302 dated April 16, 2019 (ML19106A221), ITAAC 565 UIN via ND-18-0227 dated February 22, 2018 (ML18054A565), and ITAAC 570 UIN via ND-18-0291 dated March 27, 2018 (ML18094A769). SNC is requesting withdrawal of these notifications.

Pursuant to 10 CFR 52.99(c)(3), SNC hereby notifies the NRC that as of August 23, 2021, VEGP Unit 3 and Unit 4 Uncompleted ITAAC Index numbers 75, 515, 565, and 570 have not been completed greater than 225-days prior to initial fuel load for Unit 4. Pending NRC approval of the enclosed LAR and exemption, Enclosure 4 describes the plan for completing these ITAAC.

Enclosure 1 provides the regulatory evaluation, technical evaluation, exemption evaluation, and environmental considerations for the proposed changes.

Enclosure 2 provides the significant hazards consideration.

Enclosure 3 provides a description of the requested changes and includes markups depicting the requested changes to the VEGP Units 3 and 4 licensing basis documents.

Enclosure 4 provides UINs intended for VEGP Units 3 & 4 ITAAC 2.1.03.06.i (Index No. 75), ITAAC 2.5.01.03e (Index No. 515), and ITAAC 2.5.05.02.i (Index No. 565), and ITAAC 2.5.05.03b (Index No. 570), pending NRC approval of LAR and exemption.

This letter contains no regulatory commitments. This letter has been reviewed and determined not to contain security-related or other sensitive or proprietary information.

As discussed during the pre-submittal meeting on August 19, 2021, SNC requests expedited NRC staff approval of the license amendment to support completion of the ITAAC and final construction of VEGP Unit 3. The basis for an expedited review is also provided in Enclosure 1.

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

Should you have any questions, please contact Amy Chamberlain at (205) 992-6361.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the ##th of August 2021.

Respectfully submitted,

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

Enclosures
1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment and Exemption: Clarification of ITAAC Regarding Invessel Components (LAR-21-001)
2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Significant Hazards Consideration (LAR-21-001)
3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to Licensing Basis Documents (LAR-21-001)
4) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Revised Uncompleted Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Notices (UINs) Pending NRC Approval of LAR and Exemption (LAR-21-001)

cc: (list to be confirmed prior to finalizing letter)

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Southern Nuclear Operating Company

ND-21-####

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment and Exemption:

Clarification of ITAAC Regarding Invessel Components
(LAR-21-001)

(This Enclosure consists of 12 pages, including this cover page.)

AMENDMENT AND EXEMPTION REQUEST

VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4

DOCKET NOS. 52-025 AND 52-026

1. INTRODUCTION

Southern Nuclear Operating Company (SNC) requests that the U.S. Nuclear Regulatory Commission (NRC or the Commission) amend Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Combined License (COL) Numbers NPF-91 and NPF-92, respectively. In this License Amendment Request, SNC proposes to depart from plant-specific Tier 1 information, with corresponding changes to the associated COL Appendix C information.

The requested amendment proposes changes that would revise the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Nos. 68 (2.1.03.01), 75 (2.1.03.06), 515 (2.5.01.03e), 565 (2.5.05.02.i), and 570 (2.5.05.03b), to exclude "as-built" inspection of components whose final location is in the reactor vessel, since the invessel components cannot be installed in their final "as-built" location until after core fuel load. Pursuant to 10 CFR 52.103(g), all ITAAC must be completed prior to loading the initial core. Thus, these ITAAC cannot be completed as currently written, in light of the interpretation and understanding of NRC approved guidance that provides that "as-built" SSCs must be in their final operational location prior to ITAAC Closure Notification (ICN) submittal, because these invessel components cannot be placed in their final operational location until after the 52.103(g) finding.

Pursuant to Section 52.63(b)(1) and 52.98(f) of Title 10 of the *Code of Federal Regulations* (10 CFR), SNC also requests an exemption in accordance with 10 CFR Part 52, Appendix D, "Design Certification Rule for the AP1000 Design," Section VIII.A.4. This exemption request will allow a departure from the corresponding portions of the certified information in Tier 1 of the generic DCD.

This enclosure requests approval of the license amendment necessary to implement the changes identified and shown in Enclosure 3. The discussions of changes to the plant-specific Tier 1 information also impact the corresponding COL Appendix C information.

2. REGULATORY EVALUATION

As defined in Section II of Appendix D to 10 CFR Part 52, Tier 1 information includes inspections, tests and acceptance criteria (ITAAC) and design descriptions, among other things.

10 CFR Part 52, Appendix D, Section III.B requires a licensee referencing 10 CFR Part 52, Appendix D to incorporate by reference and comply with the requirements of Appendix D, including all Tier 1 information contained in the generic AP1000 DCD.

Therefore, a licensee referencing Appendix D incorporates by reference the Tier 1 information contained in the generic DCD. The Tier 1 ITAAC and the design descriptions, along with the plant-specific ITAAC, were included in Appendix C of the COL at its issuance.

10 CFR Part 52, Appendix D, Section VIII.A.4 states that exemptions from Tier 1 information are governed by the requirements in 10 CFR 52.63(b)(1) and 10 CFR 52.98(f). It also states that the

Commission will deny such a request if it finds that the design change will result in a significant decrease in the level of plant safety otherwise provided by the design.

10 CFR Part 52, Appendix D, Section VIII.B.5.a allows an applicant or licensee who references 10 CFR Part 52, Appendix D 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, the Technical Specifications, or requires a license amendment under 10 CFR Part 52, Appendix D, Section VIII , paragraphs B.5.b or B.5.c. The proposed amendment involves a departure from the plant-specific Tier 1 ITAAC information, but no changes are needed to the UFSAR. Thus, NRC approval is not required under this regulation.

10 CFR 52.63(b)(1) allows the licensee who references a design certification rule to request NRC approval for an exemption from one or more elements of the certification information. The Commission may only grant such a request if it determines that the exemption will comply with the requirements of 10 CFR 52.7, which, in turn, points to the requirements listed in 10 CFR 50.12 for specific exemptions. In addition, the Commission must consider whether special circumstances, as required by 10 CFR 52. 7 and 50.12, outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. Therefore, any exemption from the Tier 1 information certified by Appendix D to 10 CFR Part 52 must meet the requirements of 10 CFR 50.12, 52.7, and 52.63(b)(1).

10 CFR 52.98(f) requires NRC approval for a proposed amendment to the COL for any modification to, addition to, or deletion from the terms and conditions of a COL. The proposed amendment involves changes to plant-specific Tier 1 ITAAC information and its corresponding COL Appendix C information, so NRC approval is required.

The specific NRC technical requirements applicable to the proposed amendment are the general design criteria (GDC) in Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." In particular, these technical requirements include the following GDC:

> *GDC 10, Reactor design*. The reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.
>
> GDC 13, *Instrumentation and control.* Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.
>
> GDC 19, *Control room.* A control room shall 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 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 24, *Separation of protection and control systems*. The protection system shall be separated from control systems to the extent that failure of any single control system component or channel, or failure or removal from service of any single protection system component or channel which is common to the control and protection systems leaves intact a system satisfying all reliability, redundancy, and independence requirements of the protection system. Interconnection of the protection and control systems shall be limited so as to assure that safety is not significantly impaired.

3. TECHNICAL JUSTIFICATION

3.1 TECHNICAL EVALUATION OF DEPARTURE

The reactor system (RXS) Design Commitment for ITAAC 2.1.03.01 (also referred to as ITAAC No. 68) states "The functional arrangement of the RXS is as described in the Design Description of this Section 2.1.3." The inspection identified to support confirmation of the RXS arrangement is identified as "Inspection of the as-built system will be performed." The acceptance criterion for the inspection is stated as "The as-built RXS conforms with the functional arrangement as described in the Design Description of this Section 2.1.3."

The RXS Design Commitment for ITAAC 2.1.03.06.i (also referred to as ITAAC No. 75) states "The seismic Category I equipment identified in Table 2.1.3-1 can withstand seismic design basis loads without loss of safety function." The inspection identified to support confirmation of the placed equipment is identified as "Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island." The acceptance criterion for the inspection of the placed equipment is stated as "The seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island."

Another ITAAC 2.1.03.06.i (ITAAC No. 75) inspection identified to support confirmation of the placed equipment is identified as "Inspection will be performed for the existence of a report verifying that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions." The acceptance criterion for this inspection of the placed equipment is stated as "A report exists and concludes that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions."

A third ITAAC 2.1.03.06.i (ITAAC No. 75) inspection identified to support confirmation of the placed equipment is identified as "Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment." The acceptance criterion for this inspection of the placed equipment is stated as "A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses."

The diverse actuation system (DAS) Design Commitment for ITAAC 2.5.01.03e (also referred to as ITAAC No. 515) states "The sensors identified on Table 2.5.1-3 are used for DAS input and are separate from those being used by the PMS and plant control system." The inspection identified to support confirmation of the DAS input sensors is identified as "Inspection of the as-built system will be performed." The acceptance criterion for the inspection is stated as

"The sensors identified on Table 2.5.1-3 are used by DAS and are separate from those being used by the PMS and plant control system."

The in-core instrumentation system (IIS) Design Commitment for ITAAC 2.5.05.02.i, item 2 (also referred to as ITAAC No. 565) states "The seismic Category I equipment identified in Table 2.5.5-1 can withstand seismic design basis dynamic loads without loss of safety function." The item 2.i) inspection identified to support confirmation of the incore thimble assemblies is identified as "Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.5.5-1 is located on the Nuclear Island." The item 2.i) acceptance criterion for the inspection is stated as "The seismic Category I equipment identified in Table 2.5.5-1 is located on the Nuclear Island."

The inspection identified for IIS ITAAC 2.5.05.02.i, item 2.iii) (also part of ITAAC No. 565) to support confirmation of the incore thimble assemblies is identified as "Inspection will be performed for the existence of a report verifying that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions." The item 2.iii) acceptance criterion for the inspection is stated as "A report exists and concludes that the as-built equipment including anchorage is seismically bounded by the tested or analyzed conditions."

The IIS Design Commitment for ITAAC 2.5.05.02.i, item 3.ii) (also part of ITAAC No. 565) states "The Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function, for the time required to perform the safety function." The item 3.ii) inspection identified to support confirmation of the incore thimble assemblies is identified as "Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment." The item 3.ii) acceptance criterion for the inspection is stated as "A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses."

The IIS Design Commitment for ITAAC 2.5.05.03b (also referred to as ITAAC No. 570) states "The Class 1E cables between the Incore Thermocouple elements and the connector boxes located on the integrated head package have sheaths." The inspection identified to support confirmation of these cables is identified as "Inspection of the as-built system will be performed." The acceptance criterion for the inspection is stated as "The as-built Class 1E cables between the Incore Thermocouple elements and the connector boxes located on the integrated head package have sheaths."

The ITAAC 68 Design Description for RXS includes the following key attributes:

- The reactor system (RXS) generates heat by a controlled nuclear reaction and transfers the heat generated to the reactor coolant, provides a barrier that prevents the release of fission products to the atmosphere and a means to insert negative reactivity into the reactor core and to shutdown the reactor core.

- The reactor core contains a matrix of fuel rods assembled into fuel assemblies using structural elements. Rod cluster control assemblies (RCCAs) are positioned and held within the fuel assemblies by control rod drive mechanisms (CRDMs).

- The RXS is operated during normal modes of plant operation, including startup, power operation, cooldown, shutdown and refueling.

- The component locations of the RXS are as shown in Table 2.1.3-3, including the pre-fuel load location for the RXS components that cannot be installed in their final operational configuration until fuel load occurs. Note, the RXS has no simplified figure.

Because certain RXS components will not be in their final operational location until after fuel is loaded, ITAAC 68 cannot be closed in conformance with the interpretation and understanding that "as-built" SSCs must be installed in their final operational location prior to ITAAC closure. These attributes are verified by inspections and testing following the 52.103(g) finding and associated with fuel loading, precritical, and initial criticality testing. Specifically, testing is required per COL License Conditions 2.D.(3) and 2.D.(4). Other ITAAC will demonstrate that the reactor system has been constructed in accordance with the design to the extent possible prior to fuel load. For example, ITAAC 2.1.03.03 (also referred to as ITAAC No. 72) ensures that inspections are performed and that the specified RXS components and pressure boundary welds meet ASME Code Section III requirements; additionally, a hydrostatic test is performed as required by the ASME Code Section III. ITAAC 75 will demonstrate that the specified equipment has been adequately qualified under seismic conditions and harsh environments per design requirements.

It is requested that ITAAC 68 be deleted.

The ITAAC 75 Acceptance Criteria 6.i) requires that the seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island. The seismic Category I equipment identified in Table 2.1.3-1 includes components which are stored in protected environments until it is time for loading the initial core, namely the fuel assemblies. Further, fuel loading and operation of the RXS will not and cannot occur until the equipment is "on the Nuclear Island." Thus, this is an unnecessary requirement that does not serve the underlying purpose of ITAAC which are required to be completed prior to the initial fuel load. Additionally, the remaining inspections required by ITAAC 75 verify that the seismic Category I equipment in Table 2.1.3-1 is qualified to be located on the Nuclear Island.

It is requested that ITAAC 75, item 6.i) be deleted.

The ITAAC 75 Acceptance Criteria 6.iii) requires a report that concludes that the "as-built" equipment including anchorage is seismically bounded by the tested or analyzed conditions. The ITAAC 75 Acceptance Criteria 9.a)ii) requires a report that concludes that the "as-built" Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

The seismic Category I equipment identified in Table 2.1.3-1 includes the reactor vessel, the upper and lower internals assemblies, the fuel assemblies, rod assemblies, control rod drive mechanisms, incore instrument quickloc assemblies, and the source, intermediate and power range detectors. Per the COL license conditions governing testing and fuel loading and UFSAR Section 4.2 describing the fuel system design, these equipment items will not be installed in their final operational locations until after the initial core is loaded with fuel assemblies in the reactor vessel, along with the other assemblies and detectors, and the reactor head is set to complete the reactor vessel. Accordingly, these portions of ITAAC 75

cannot be closed in conformance with the interpretation and understanding that "as-built" SSCs must be installed in their final operational location prior to ITAAC closure. Prior to fuel load, these attributes are verified by inspections and testing performed by the manufacturer and on-site, to the extent practical (i.e., not in their final assembled "as-built" operational configuration). Inspections and tests following the 52.103(g) finding are performed associated with fuel loading, precritical, and initial criticality testing, as described in UFSAR Section 14.2.10 and required per COL License Conditions 2.D.(3) and 2.D.(4).

It is requested that ITAAC 75, item 6.iii) and item 9.a)ii) be revised to remove the "as-built" attribute of these inspections.

The ITAAC 515 Acceptance Criteria requires that the sensors identified in Table 2.5.1-3 are used by DAS and are separate from those being used by the PMS and plan control system. However, the inspection requirement is of the "as-built" system. The sensors identified in Table 2.5.1-3 includes the core exit temperature sensors. However, pursuant to UFSAR Subsection 4.4.6.1, the sensors are to be installed within the core and thus, cannot be installed in their final operational location prior to constitution of a core by the initial fuel load. Accordingly, as currently written, ITAAC 515 cannot be closed in conformance with the interpretation and understanding that "as-built" SSCs must be installed in their final operational location prior to ITAAC closure.

It is requested that ITAAC 515 be revised to remove the "as-built" attribute of these inspections for the core exit temperature sensors.

The ITAAC 565 Acceptance Criteria 2.i) requires that the seismic Category I equipment identified in Table 2.5.5-1 is located on the Nuclear Island. The seismic Category I equipment identified in Table 2.5.5-1 is the Incore Thimble Assemblies (at least three assemblies in each core quadrant). The incore thimble assemblies are stored in protected environments off the Nuclear Island until it is time for loading the initial core. These include the core exit temperature sensors of ITAAC 515. Storing such sensitive equipment "on the Nuclear Island" would unnecessarily subject it to potential damage. Further, fuel loading and loading of the incore thimble assemblies will not and cannot occur until the equipment is "on the Nuclear Island." Thus, this is an unnecessary requirement that does not serve the underlying purpose of ITAAC which are required to be completed prior to the initial fuel load. The remaining inspections required by ITAAC 565 verify that the seismic Category I equipment in Table 2.5.5-1 are qualified to be located on the Nuclear Island.

It is requested that ITAAC 565, item 2.i) be deleted.

The ITAAC 565 Acceptance Criteria 2.iii) requires a report that concludes that the "as-built" equipment including anchorage is seismically bounded by the tested or analyzed conditions. The ITAAC 565 Acceptance Criteria 3.a)ii) requires a report that concludes that the "as-built" Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests, analyses, or a combination of type tests and analyses.

The seismic Category I equipment identified in Table 2.5.5-1 is the Incore Thimble Assemblies (at least three assemblies in each core quadrant). As discussed above, this equipment will not be installed in their final operational locations until after the initial core is loaded with fuel assemblies in the reactor vessel. Accordingly, these portions of ITAAC 565 cannot be closed in conformance with the interpretation and understanding that "as-built" SSCs must be

installed in their final operational location prior to ITAAC closure. Prior to fuel load, these attributes are verified by vendor inspections and testing; following the 52.103(g) finding, associated fuel loading and precritical testing will be performed in accordance with COL License Condition 2.D.(3).

It is requested that ITAAC 565, item 2.iii) and item 3.a)ii) be revised to remove the "as-built" attribute of these inspections.

The ITAAC 570 Acceptance Criteria 3.b) requires that the as-built Class 1E cables between the Incore Thermocouple elements and the connector boxes located on the integrated head package have sheaths. During a public meeting on August 12, 2021, NRC staff explained the position that, in order to give full effect to the design considerations Staff understands to underly the ITAAC, this ITAAC should include the incore portion of the Class 1E cables, not just those on the integrated head package. These incore class 1E cables are subcomponents of the incore thimble assemblies, which as discussed above cannot be installed in their final operational location prior to constitution of a core by the initial fuel load.

It is requested that the Design Description, item 3.b) (supporting ITAAC 570), be revised for clarity, and that ITAAC 570, item 3.b) be revised for clarity and to remove the "as-built" attribute of the inspection. To give effect to the scope of this ITAAC expressed by NRC staff, the clarity changes include replacing the phrase "Incore Thermocouple elements" with "Core Exit Temperature sensors" for consistency with other ITAAC nomenclature, adding additional "location" information, and replacing "system" with "Class 1E cables" so that the inspection language is consistent with the Design Commitment and the Acceptance Criteria.

The ITAAC inspections for equipment which cannot be inspected in its final location include review of documentation such as the system specifications, records of inspection of the components performed by the manufacturer prior to shipment to the plant site, Quality Release and Certificate of Conformance documentation, construction drawings, and completed construction records, including those performed on-site, to the extent possible given that the facility design does not allow certain components to be installed in their final operational configuration until after fuel is installed in the vessel.

As noted in UFSAR Subsection 14.2.10.1.7, incore instrumentation testing following installation of the components in the head and the head placement following core loading and prior to criticality will provide an additional confirmation that the components are installed in accordance with the approved design and are operating properly prior to plant heatup. This final testing includes electrical continuity checks and data comparison to verify proper operation. This testing is required per COL LC 2.D.(3)(c), including notification to the NRC of completion of testing per COL LC 2.D.(3)(e).

3.2 EVALUATION OF EXEMPTION

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

present in order for the NRC to consider granting an exemption request. SNC has determined that the requested exemption meets the special circumstances of 10 CFR 50.12(a)(2)(ii). That subsection defines special circumstances as when "[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule." An analysis of each of these findings is presented below.

3.2.1 AUTHORIZED BY LAW

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

3.2.2 NO UNDUE RISK TO PUBLIC HEATH AND SAFETY

The underlying purpose of Appendix D to 10 CFR Part 52 is to ensure that SNC will construct and operate the plant based on the approved information found in the DCD incorporated by reference into the licensee's licensing basis. This exemption does not involve any change to the facility design. The proposed changes would revise Tier 1 information as presented in the ITAAC table to allow these ITAAC to be closed in light of the existing facility design and the interpretation that “as-built” SSCs must be installed in their final operational location prior to submission of the ICN. These changes will eliminate anomalies in the ITAAC resulting from guidance regarding as-built ITAAC closure and enable the licensee to safely construct and operate the facility consistent with the performance of the components for the AP1000 design certified by the NRC by revising the information mentioned above found in Tier 1 of the DCD. These changes will not impact the ability of the systems or equipment to perform their design function. These changes do not add any new equipment or system interfaces to the current plant design. The proposed 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 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, as required by 10 CFR 50.12(a)(1), SNC has determined that there is no undue risk to public health and safety.

3.2.3 CONSISTENT WITH COMMON DEFENSE AND SECURITY

The proposed exemption would allow changes to elements of the plant-specific Tier 1 DCD. This is a permanent exemption limited in scope to particular Tier 1 ITAAC information. Subsequent changes to Tier 1 information would be subject to full compliance by the licensee as specified in Section VIII.A.4 of Appendix D to 10 CFR Part 52. The proposed changes would revise Tier 1 information as presented in the ITAAC table. These changes will enable the licensee to safely construct and operate the facility consistent with the performance of the

components for the AP1000 design certified by the NRC by revising the information mentioned above found in Tier 1 of the DCD. The changes do not alter or impede the design, function, or operation of any plant structures, systems, and components (SSCs) associated with the facility's physical or cyber security and, therefore, do not affect any plant equipment that is necessary to maintain a safe and secure plant status. In addition, the change has no impact on plant security or safeguards. Therefore, as required by 10 CFR 50.12(a)(1), SNC has determined that the common defense and security is not impacted by this exemption.

3.2.4 SPECIAL CIRCUMSTANCES

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. The underlying purposes of Section III.B of Appendix D to 10 CFR Part 52 is to ensure that the licensee will construct and operate the plant based on the approved information found in the AP1000 DCD, which was incorporated by reference into the licensee's licensing basis. The proposed changes to Tier 1 will enable SNC to safely construct and operate the AP1000 facility consistent with established acceptance criteria used in the design certified by the NRC.

Special circumstances are present in the particular circumstances discussed in this license amendment request because the application of Section III.B of Appendix D to 10 CFR Part 52 in this circumstance does not serve the underlying purpose of the rule. The proposed change implements changes to Tier 1 information. This exemption request and associated revisions to Tier 1 information demonstrate that the applicable regulatory requirements will continue to be met. Consequently, the safety impact that may result from any reduction in standardization is minimized because the proposed change does not result in a reduction in the level of safety. Therefore, SNC has determined that the special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from Section III.B of Appendix D to 10 CFR Part 52 exist.

3.2.5 SPECIAL CIRCUMSTANCES OUTWEIGH REDUCED STANDARDIZATION

This exemption would allow the implementation of changes to Tier 1 information as proposed in the license amendment request. The proposed changes would revise Tier 1 ITAAC information. These changes will enable the licensee to safely construct and operate the facility consistent with the performance of the components for the AP1000 design certified by the NRC by updating the information mentioned above found in Tier 1 of the DCD. The design functions of the systems associated with this request are consistent with the current design of the plant in supporting the actual system functions. The design functions of these systems will continue to be maintained because the associated revisions to the Tier 1 information demonstrate that the applicable regulatory requirement will continue to be met. Consequently, the safety impact that may result from any reduction in standardization is minimized, because the proposed change does not result in a reduction in the level of safety. Based on the foregoing reasons, as required by 10 CFR Part 52.63(b)(1), SNC has determined that the special circumstances outweigh the effects the departure has on the standardization of the AP1000 design.

3.2.6 NO SIGNIFICANT REDUCTION IN SAFETY

This exemption would allow the implementation of changes to Tier 1 information as proposed in the license amendment request. The changes will not impact the functional capabilities of the SSCs. The proposed changes will not adversely affect the ability of the SSCs to perform

their design functions and the level of safety provided by the current systems and equipment therein is unchanged. Therefore, based on the foregoing reasons and as required by 10 CFR Part 52, Appendix D, Section VIII.A.4, SNC has determined that granting the exemption would not result in a significant decrease in the level of safety otherwise provided by the design.

4. STATE CONSULTATION

In accordance with the Commission's regulations in 10 CFR 50.91(b)(2), the Georgia State official was notified of the proposed amendment.

5. ENVIRONMENTAL CONSIDERATIONS

The amendment changes a requirement with respect to facility components located within the restricted area as defined in 10 CFR Part 20. The amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. Enclosure 2 provides a finding that the amendment involves no significant hazards consideration. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

Because the exemption does not authorize any activities other than those proposed in the license amendment, the exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), as discussed in the above paragraph. Therefore, pursuant to 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the exemption.

6. CONCLUSION

SNC has determined that pursuant to Section VIII.A.4 of Appendix D to 10 CFR Part 52, the requested exemption (1) is authorized by law, (2) presents no undue risk to the public health and safety, (3) is consistent with the common defense and security, (4) presents special circumstances, (5) the special circumstances outweigh the potential decrease in safety due to reduced standardization, and (6) does not reduce the level of safety at the licensee's facility. Therefore, SNC requests the staff grant the proposed exemption from Tier 1 information.

SNC has concluded, based on the considerations discussed in Section 3.1, Technical Evaluation of the Departure, that there is reasonable assurance that: (1) the health and safety of the public will not be endangered by operation in the proposed manner, (2) 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, SNC requests the NRC Staff to find the changes proposed in this license amendment to be acceptable.

7. REFERENCES

7.1 Combined License NPF-91 for Vogtle Electric Generating Plant Unit 3, Southern Nuclear Operating Company (ADAMS Accession No. ML14100A106).

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

7.3 VEGP Units 3 and 4 Updated Final Safety Analysis Report (UFSAR), Revision 10, and Plant-Specific Tier 1, Revision 9, dated June 14, 2021 (ADAMS Accession Nos. ML21179A098 and ML21179A097 respectively).

7.4 AP1000 Design Control Document, Revision 19, dated June 13, 2012 (ADAMS Accession No. ML11171A500).

7.5 U.S. Nuclear Regulatory Commission, "Final Safety Evaluation Report Related to the Combined Licenses for Vogtle Electric Generating Plant, Units 3 and 4," Volume 1, NUREG-2124, dated September 30, 2012 (ADAMS Accession No. ML12271A045).

7.6 Final Safety Evaluation Report Related to Certification of the AP1000 Standard Plant Design, NUREG-1793, Supplement 2, dated August 5, 2011 (ADAMS Accession No. ML112061231).

8. BASIS FOR EXPEDITED REVIEW

SNC requests an expedited review of this request by October 8, 2021, in order to allow SNC to proceed with completion of the identified Inspection, Test, Analysis and Acceptance Criteria (ITAAC). Delayed review of this LAR will result in delay in the completion of the VEGP units as discussed below.

As noted in Section 3.1 above, under the interpretation and understanding that as-built ITAAC cannot be closed until SSCs are installed in their final operational location, these ITAAC cannot be closed prior to fuel load as required for the 52.103(g) finding. Thus, NRC's review of this LAR will affect the critical path related activities leading to fuel load for Vogtle Unit 3, and similarly, for Vogtle Unit 4. Much of the Vogtle Unit 3 system inspections are already complete and verified, but final ITAAC closure is not possible without fuel load and reactor vessel head placement, and thus, approval of this change is required to complete the ITAAC and reach a 10 CFR 52.103(g) finding.

Therefore, SNC requests expedited NRC staff approval of the license amendment to support completion of the ITAAC and final completion of VEGP Unit 3. Delayed approval of this license amendment could result in a delay in completion of the associated ITAAC and subsequent completion activities. SNC similarly expects to expedite implementation of this proposed amendment within a short period following approval of the requested changes.

Additionally, while the schedule information is applicable only for VEGP Unit 3, the requested change is applicable to both units and is also requested for VEGP Unit 4 concurrent with the Unit 3 change.

Southern Nuclear Operating Company

ND-21-####

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Significant Hazards Consideration

(LAR-21-001)

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

SIGNIFICANT HAZARDS CONSIDERATION

Southern Nuclear Operating Company (SNC) is requesting issuance of an amendment to facility Operating License Nos. NPF-91 and NPF-92, issued to SNC for operation of the VEGP Units 3 and 4, located in Burke County, Georgia.

The proposed changes would revise the VEGP Units 3 and 4 combined license (COL) Appendix C (and corresponding plant-specific DCD Tier 1) information. Specifically, the request proposes to revise the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.1.03.01 (68), ITAAC 2.1.03.06 (75), ITAAC 2.5.01.3e (515), ITAAC 2.5.05.02.i (565), and ITAAC 2.5.05.03b (570), specified in COL Appendix C, for inspection of invessel installed components. Since these components are to be installed in the reactor vessel, the component(s) cannot be installed at their final operational location at the plant site prior to constitution of a core by the initial fuel load. Thus, approval of this change is required to allow completion of the ITAAC and to reach a 10 CFR 52.103(g) finding. There is no change to the facility design, nor is there any change to the planned verification activities, both before and after fuel load, for these invessel components—taking into account the location of these components prior to fuel load, the necessary installation activities required for fuel loading to occur, and the startup testing activities required by the COL and Chapter 14 of the UFSAR. Because this proposed change requires a departure from Tier 1 information in the Westinghouse AP1000 DCD, SNC also requested an exemption from the requirements of the Generic DCD Tier 1 in accordance with section 52.63(b)(1) of title 10 of the *Code of Federal Regulations* (10 CFR).

As required by 10 CFR 50.91(a), SNC provides the following analysis of the issue of no significant hazards consideration, which is presented below:

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

   Response: No.

   The proposed revisions have been found to continue to provide the required functional capability of the safety systems for previously evaluated accidents and anticipated operational occurrences. The affected system is not an initiator of any accident analyzed in the Updated Final Safety Analysis Report (UFSAR), nor do the changes involve an interface with any structure, system or component (SSC) accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the UFSAR are not affected. The proposed changes do not involve a change to any mitigation sequence or the predicted radiological releases due to postulated accident conditions, thus, the consequences of the accidents evaluated in the UFSAR are not affected.

   The UFSAR describes the analyses of various design basis transients and accidents to demonstrate compliance of the design with the acceptance criteria for these events. The acceptance criteria for the various events are based on meeting the relevant regulations and general design criteria and are a function of the anticipated frequency of occurrence of the event and potential radiological consequences to the public. The revised ITAAC maintains the plant conditions, and thus, maintains the frequency designation and consequence level as previously evaluated.

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

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 revisions have been found to continue to confirm the required functional capability of the safety systems for previously evaluated accidents and anticipated operational occurrences. The proposed revisions do not change the function of the related systems, and thus, the changes do not introduce a new failure mode, malfunction or sequence of events that could adversely affect safety or safety-related equipment.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

The proposed revisions have been found to continue to provide the required functional capability of the safety systems for previously evaluated accidents and anticipated operational occurrences. The proposed revisions do not change the function of the related systems nor significantly affect the margins provided by the systems. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the requested changes.

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

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.

Southern Nuclear Operating Company

ND-21-####

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Proposed Changes to Licensing Basis Documents

(LAR-21-001)

Additions identified by blue underlined text.
~~Deletions Identified by red strikethrough of text.~~
* * * indicates omitted existing text that is not shown.

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

LICENSING BASIS CHANGE DESCRIPTIONS

COL Appendix C Table 2.1.3-2, item No. 68:

- Remove ITAAC No. 2.1.03.01.

COL Appendix C Table 2.1.3-2, item No. 75:

- Remove ITAAC No. 2.1.03.06.i, item 6.i).
- Revise ITAAC No. 2.1.03.06.i, item 6.iii), to remove the inspection of “as-built” equipment.
- Revise ITAAC No. 2.1.03.06.i, item 9.a)ii), to remove the inspection of “as-built” equipment.

COL Appendix C Table 2.5.1-4, item No. 515:

- Revise ITAAC No. 2.5.01.03e to remove Core Exit Temperature sensors from “as-built” inspection requirement.

COL Appendix C Section 2.5.5, Design Description (related to item No. 570):

- Revise Design Description item 3.b) to clarify the scope of the Design Commitment.

COL Appendix C Table 2.5.5-2, item No. 565:

- Remove ITAAC No. 2.5.05.02.i, item 2.i).
- Revise ITAAC No. 2.5.05.02.i, item 2.iii) to remove “as-built” from the inspection requirement.
- Revise ITAAC No. 2.5.05.02.i, item 3.a)ii) to remove “as-built” from the inspection requirement. the inspection requirement.

COL Appendix C Table 2.5.5-2, item No. 570:

- Revise ITAAC No. 2.5.05.03b, item 3.b) to remove “as-built” from the inspection requirement and to clarify the scope of the Design Commitment.

Plant-specific Tier 1 Table 2.1.3-2:

- Remove ITAAC No. 1.

Plant-specific Tier 1 Table 2.1.3-2:

- Remove ITAAC No. 6.i).
- Revise ITAAC No. 6.iii) to remove the inspection of “as-built” equipment.
- Revise ITAAC No. 9.a)ii), to remove the inspection of “as-built” equipment.

Plant-specific Tier 1 Table 2.5.1-4:

- Revise ITAAC No. 3.e to remove Core Exit Temperature sensors from “as-built” inspection.

Plant-specific Tier 1 Section 2.5.5, Design Description (related to item No. 570):

- Revise Design Description item 3.b) to clarify the scope of the Design Commitment.

Plant-specific Tier 1 Table 2.5.5-2:

- Remove ITAAC No. 2.i).
- Revise ITAAC No. 2.iii) to remove “as-built” from the inspection requirement.
- Revise ITAAC No. 3.a)ii) to remove “as-built” from the inspection requirement.
- Revise ITAAC No. 3.b) to remove “as-built” from the inspection requirement and to clarify the scope of the Design Commitment.

Markups of the licensing basis documents are provided on the following pages.

COL Appendix C Table 2.1.3-2 (for ITAAC 68 and ITAAC 75) is revised as follows:

Table 2.5.1-4
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
68	2.1.03.01	1. Not used. ~~The functional arrangement of the RXS is as described in the Design Description of this Section 2.1.3.~~	Not used. ~~Inspection of the as-built system will be performed.~~	Not used. ~~The as-built RXS conforms with the functional arrangement as described in the Design Description of this Section 2.1.3.~~
…				
75	2.1.03.06.i	6. The seismic Category I equipment identified in Table 2.1.3-1 can withstand seismic design basis loads without loss of safety function.	i) Not used. ~~Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island.~~ ii) … (no changes) iii) Inspection will be performed for the existence of a report verifying that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.	i) Not used. ~~The seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island.~~ ii) … (no changes) iii) A report exists and concludes that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.
		9.a) The Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	i) … (no changes) ii) Inspection will be performed of the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	i) … (no changes) ii) A report exists and concludes that the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

COL Appendix C Table 2.5.1-4 (for ITAAC 515) is revised as follows:

Table 2.5.1-4
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
515	2.5.01.03e	3.e) The sensors identified on Table 2.5.1-3 are used for DAS input and are separate from those being used by the PMS and plant control system.	Inspection of the as-built system will be performed except for the core exit temperature sensors. Inspection of the core exit temperature sensors will be performed.	The sensors identified on Table 2.5.1-3 are used by DAS and are separate from those being used by the PMS and plant control system.

COL Appendix C Section 2.5.5, Design Description, item 3.b, is revised (related to ITAAC 570) as follows:

b) The Class 1E cables between the Core Exit Temperature sensors, which are located within the Incore Thimble Assemblies, ~~Incore Thermocouple elements~~ and the connector boxes, which are located on the integrated head package, have sheaths.

COL Appendix C Table 2.5.5-2 is revised (for ITAAC 565) as follows:

Table 2.5.5-2
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
565	2.5.05.02.i	2. The seismic Category I equipment identified in Table 2.5.5-1 can withstand seismic design basis dynamic loads without loss of safety function.	i) Not used. ~~Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.5.5-1 is fabricated to be located on the Nuclear Island.~~ ii)… (no changes) iii) Inspection will be performed for the existence of a report verifying that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.	i) Not used. ~~The seismic Category I equipment identified in Table 2.5.5-1 is fabricated to be located on the Nuclear Island.~~ ii)… (no changes) iii) A report exists and concludes that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.
		3.a) The Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function, for the time required to perform the safety function.	i)… (no changes) ii) Inspection will be performed of the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	i)… (no changes) ii) A report exists and concludes that the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

COL Appendix C Table 2.5.5-2 is revised (for ITAAC 570) as follows:

Table 2.5.5-2
Inspections, Tests, Analyses, and Acceptance Criteria

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
570	2.5.05.03b	3.b) The Class 1E cables between the Core Exit Temperature sensors, which are located within the Incore Thimble Assemblies, ~~Incore Thermocouple elements~~ and the connector boxes, which are located on the integrated head package, have sheaths.	Inspection of the ~~as-built system~~ Class 1E cables will be performed.	The ~~as-built~~ Class 1E cables between the Core Exit Temperature sensors, which are located within the Incore Thimble Assemblies, ~~Incore Thermocouple elements~~ and the connector boxes, which are located on the integrated head package, have sheaths.

Plant-Specific Tier 1 Table 2.1.3-2 is revised (for ITAAC 68 and ITAAC75) as follows:

Table 2.1.3-2
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Not used. ~~The functional arrangement of the RXS is as described in the Design Description of this Section 2.1.3.~~	Not used. ~~Inspection of the as-built system will be performed.~~	Not used. ~~The as-built RXS conforms with the functional arrangement as described in the Design Description of this Section 2.1.3.~~

…

6. The seismic Category I equipment identified in Table 2.1.3-1 can withstand seismic design basis loads without loss of safety function.	i) Not used. ~~Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island.~~ ii) … (no changes) iii) Inspection will be performed for the existence of a report verifying that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.	i) Not used. ~~The seismic Category I equipment identified in Table 2.1.3-1 is located on the Nuclear Island.~~ ii) … (no changes) iii) A report exists and concludes that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.
9.a) The Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	i) … (no changes) ii) Inspection will be performed of the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	i) … (no changes) ii) A report exists and concludes that the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

Plant-Specific Tier 1 Table 2.5.1-4 is revised (for ITAAC 515) as follows:

Table 2.5.1-4
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3.e) The sensors identified on Table 2.5.1-3 are used for DAS input and are separate from those being used by the PMS and plant control system	Inspection of the as-built system will be performed except for the core exit temperature sensors. Inspection of the core exit temperature sensors will be performed.	The sensors identified on Table 2.5.1-3 are used by DAS and are separate from those being used by the PMS and plant control system.

Plant-Specific Tier 1 Section 2.5.5, Design Description, item 3.b, is revised (related to ITAAC 570) as follows:

b) The Class 1E cables between the Core Exit Temperature sensors, which are located within the Incore Thimble Assemblies, ~~Incore Thermocouple elements~~ and the connector boxes, which are located on the integrated head package, have sheaths.

Plant-Specific Tier 1 Table 2.5.5-2 is revised (for ITAAC 565) as follows:

Table 2.5.5-2
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
2. The seismic Category I equipment identified in Table 2.5.5-1 can withstand seismic design basis dynamic loads without loss of safety function.	i) Not used. ~~Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.5.5-1 is located on the Nuclear Island.~~ ii)… (no changes) iii) Inspection will be performed for the existence of a report verifying that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.	i) Not used. ~~The seismic Category I equipment identified in Table 2.5.5-1 is located on the Nuclear Island.~~ ii)… (no changes) iii) A report exists and concludes that the ~~as-built~~ equipment including anchorage is seismically bounded by the tested or analyzed conditions.
3.a) The Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function, for the time required to perform the safety function.	i)… (no changes) ii) Inspection will be performed of the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	i)… (no changes) ii) A report exists and concludes that the ~~as-built~~ Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

Plant-Specific Tier 1 Table 2.5.5-2 is revised (for ITAAC 570) as follows:

Table 2.5.5-2
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3.b) The Class 1E cables between the Core Exit Temperature sensors, which are located within the Incore Thimble Assemblies, ~~Incore Thermocouple elements~~ and the connector boxes, which are located on the integrated head package, have sheaths.	Inspection of the ~~as-built system~~ Class 1E cables will be performed.	The ~~as-built~~ Class 1E cables between the Core Exit Temperature sensors, which are located within the Incore Thimble Assemblies, ~~Incore Thermocouple elements~~ and the connector boxes, which are located on the integrated head package, have sheaths.

Southern Nuclear Operating Company

ND-21-####

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Uncompleted Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Notices (UINs) Pending NRC Approval of LAR and Exemption

(LAR-21-001)

(This Enclosure consists of 20 pages, including this cover page)

ITAAC 2.1.03.06 (Index No. 75) UIN.

ITAAC Statement

Design Commitment:

6. The seismic Category I equipment identified in Table 2.1.3-1 can withstand seismic design basis loads without loss of safety function.

9.a) The Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

Inspections, Tests, Analyses:

i) Not used.

ii) Type tests, analyses, or a combination of type tests and analyses of seismic Category I equipment will be performed.

iii) Inspection will be performed for the existence of a report verifying that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

i) Type tests, analysis, or a combination of type tests and analysis will be performed on Class 1E equipment located in a harsh environment.

ii) Inspection will be performed of the Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.

Acceptance Criteria:

i) Not used.

ii) A report exists and concludes that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

iii) A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

i) A report exists and concludes that the Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

ITAAC Completion Description

This ITAAC requires that inspections, tests, and analyses be performed and documented to ensure the Reactor System (RXS) components identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.1.3-1 (the Table) are designed and constructed in accordance with applicable requirements.

ii) A report exists and concludes that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

Seismic Category I components in the Table require type tests and/or analyses to demonstrate structural integrity and operability. Structural integrity of the seismic Category I valves, as well as other passive seismic Category I mechanical equipment, is demonstrated by analysis in accordance with American Society of Mechanical Engineers (ASME) Code Section III (Reference 4).

Safety-related (Class 1E) electrical equipment in the Table is seismically qualified by type testing combined with analysis in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard 344-1987 (Reference 5). The specific qualification method (i.e., type testing, analysis, or combination) used for each component in the Table is identified in Attachment A. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the Updated Final Safety Analysis Report (UFSAR) Appendix 3D (Reference 6). The EQ Reports (Reference 7) identified in Attachment A contain applicable test reports and associated documentation and conclude that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

iii) A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

To the extent that the installation prior to fuel load is possible, an inspection (Reference 1) is conducted to confirm the satisfactory installation of the seismically qualified components in the Table. The inspection verifies the equipment make/model/serial number, as-designed equipment mounting orientation, anchorage and clearances, and electrical and other interfaces. For components not installed prior to fuel load, the inspection is accomplished by verifying a quality assurance data package (Reference 2) exists that concludes that the equipment was constructed as per design.

The inspection conducted for each component in the table will consider the critical seismic attributes identified in the associated EQ Report for that component. The inspection will confirm that the equipment, including anchorage, is seismically bounded by the tested or analyzed conditions.

Attachment A identifies the EQRR (Reference 3) completed to verify that the seismic Category I equipment listed in the Table, including anchorage, are seismically bounded by the tested or analyzed conditions, IEEE Standard 344-1987 (Reference 5) and NRC Regulatory Guide (RG) 1.100 (Reference 8).

i) A report exists and concludes that the Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

The harsh environment Class 1E components in the Table are qualified by type testing and/or analyses. Class 1E electrical component type testing is performed in accordance with IEEE Standard 323-1974 (Reference 9) and RG 1.89 (Reference 10) to meet the requirements of

10 CFR 50.49. Type testing of safety-related equipment meets the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 4. Attachment A identifies the EQ program and specific qualification method for each safety-related mechanical or Class 1E electrical component located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the UFSAR Appendix 3D (Reference 6). EQ Reports (Reference 7) identified in Attachment A contain applicable test reports and associated documentation and conclude that the equipment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

To the extent that the installation prior to fuel load is possible, an inspection is conducted to confirm the satisfactory installation of the harsh qualified components in the Table. The inspection verifies the equipment location, make/model/serial number, as-designed equipment mounting, wiring, cables, and terminations and confirms that the environmental conditions for the zone in which the component is mounted are bounded by the tested and/or analyzed conditions. For components not installed prior to fuel load, the inspection is accomplished by verifying a quality assurance data package exists that concludes that the equipment was constructed as per design.

The EQRR (Reference 3) identified in Attachment A document this inspection and conclude that the harsh environment Class 1E equipment and the associated wiring, cables, and terminations are bounded by the qualified configuration and IEEE Standard 323-1974 (Reference 9).

Together, these reports (References 3 and 7) provide evidence that the ITAAC Acceptance Criteria requirements are met:

- A report exists and concludes that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function;
- A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions;

- A report exists and concludes that the Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function; and

- A report exists and concludes that the Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

References 3 and 7 are available for NRC inspection as part of the Unit 3 and Unit 4 ITAAC 2.1.03.06.i Completion Packages (References 11 and 12, respectively).

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This finding review, which included now-consolidated ITAAC Indexes 76, 77, 81, and 82, found no relevant ITAAC findings associated with this ITAAC.

References (available for NRC inspection)

1. ND-RA-001-014, Rev. 2, “EQ Walkdown ITAAC Guideline”
2. Regulatory Guide 1.89, Rev 1, “Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants”
3. 2.1.03.06.i-U3-CP-RevX, ITAAC Completion Package
4. 2.1.03.06.i-U4-CP-RevX, ITAAC ND-RA-001-014, Rev. 2, “EQ Walkdown ITAAC Guideline”
5. APP-XXX-VQQ-XXX, Rev. X, “Quality Assurance Data Package”
6. EQ Reconciliation Reports as identified in Attachment A for Units 3 and 4
7. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section III, “Rules for Construction of Nuclear Power Plant Components,” 1998 Edition with 2000 Addenda
8. IEEE Standard 344-1987, “IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations”
9. Vogtle 3&4 Updated Final Safety Analysis Report Appendix 3D, “Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment”
10. Equipment Qualification Reports as identified in Attachment A
11. Regulatory Guide 1.100, Rev. 2, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants"
12. IEEE Standard 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations Completion Package
13. NEI 08-01, “Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52”

Attachment A

System: Reactor System (RXS)

Equipment Name+	Tag No.+	Seismic Cat. I +	Class 1E/ Qual. For Harsh Envir.+ [3]	Envir. Zone [1]	Envir Qual Program [2]	Type of Qual.	EQ Reports	EQRR
RV (Reactor Vessel)	RXS-MV-01	Yes	-	N/A	N/A	Analysis	APP-MV01-Z0R-101	2.1.03.06.i-U3/4-EQRR-PCDXXX
Reactor Upper Internals Assembly	RXS-MI-01	Yes	-	N/A	N/A	Analysis	APP-MI01-S3R-002	2.1.03.06.i-U3/4-EQRR-PCDXXX
Reactor Lower Internals Assembly	RXS-MI-02	Yes	-	N/A	N/A	Analysis	APP-MI01-S3R-002	2.1.03.06.i-U3/4-EQRR-PCDXXX

Equipment Name+	Tag No.+	Seismic Cat. I +	Class 1E/ Qual. For Harsh Envir.+ [3]	Envir. Zone [1]	Envir Qual Program [2]	Type of Qual.	EQ Reports	EQRR
Fuel Assemblies (157 locations)	RXS-FA-A07/ A08/ A09/ B05/ B06/ B07/ B08/ B09/ B10/ B11/ C04/ C05/ C06/ C07/ C08/ C09/ C10/ C11/ C12/ D03/ D04/ D05/ D06/ D07/ D08/ D09/ D10/ D11/ D12/ D13/ E02/ E03/ E04/ E05/ E06/ E07/ E08/ E09/ E10/ E11/ E12/ E13/ E14/ F02/ F03/ F04/ F05/ F06/ F07/ F08/ F09/ F10/ F11/ F12/ F13/ F14/ G01/ G02/ G03/ G04/ G05/ G06/ G07/ G08/ G09/ G10/ G11/ G12/ G13/ G14/ G15/ H01/ H02/ H03/ H04/ H05/ H06/ H07/ H08/ H09/ H10/ H11/ H12/ H13/ H14/ H15/ J01/ J02/ J03/ J04/ J05/ J06/ J07/ J08/ J09/ J10/ J11/ J12/ J13/ J14/ J15/ K02/ K03/ K04/ K05/ K06/ K07/ K08/ K09/ K10/ K11/ K12/ K13/ K14/ L02/ L03/ L04/ L05/ L06/ L07/ L08/ L09/ L10/ L11/ L12/ L13/ L14/ M03/ M04/ M05/ M06/ M07/ M08/ M09/ M10/ M11/ M12/ M13/ N04/ N05/ N06/ N07/ N08/ N09/ N10/ N11/ N12/ P05/ P06/ P07/ P08/ P09/ P10/ P11/ R07/ R08/ R09	Yes	-	N/A	N/A	Analysis	CN-NRFE-10-21 CN-NRFE-13-1	2.1.03.06.i-U3/4-EQRR-PCDXXX

Equipment Name+	Tag No.+	Seismic Cat. I +	Class 1E/ Qual. For Harsh Envir.+ [3]	Envir. Zone [1]	Envir Qual Program [2]	Type of Qual.	EQ Reports	EQRR
Rod Cluster Control Assemblies (RCCAs) (minimum 53 locations)	RXS-FR-B06/ B10/ C05/ C07/ C09/ C11/ D06/ D08/ D10/ E03/ E05/ E07/ E09/ E11/ E13/ F02/ F04/ F12/ F14/ G03/ G05/ G07/ G09/ G11/ G13/ H04/ H08/ H12/ J03/ J05/ J07/ J09/ J11/ J13/ K02/ K04/ K12/ K14/ L03/ L05/ L07/ L09/ L11/ L13/ M06/ M08/ M10/ N05/ N07/ N09/ N11/ P06/ P10	Yes	-	N/A	N/A	Analysis	NRFE-14-1	2.1.03.06.i-U3/4-EQRR-PCDXXX
Gray Rod Cluster Assemblies (GRCAs) (16 locations)	RXS-FG-B08/ D04/ D12/ F06/ F08/ F10/ H02/ H06/ H10/ H14/ K06/ K08/ K10/ M04/ M12/ P08	Yes	-	N/A	N/A	Analysis	NRFE-14-1	2.1.03.06.i-U3/4-EQRR-PCDXXX

Equipment Name+	Tag No.+	Seismic Cat. I +	Class 1E/ Qual. For Harsh Envir.+ [3]	Envir. Zone [1]	Envir Qual Program [2]	Type of Qual.	EQ Reports	EQRR
Control Rod Drive Mechanisms (CRDMs) (69 Locations)	RXS-MV-11B06/ 11B08/ 11B10/ 11C05/ 11C07/ 11C09/ 11C11/ 11D04/ 11D06/ 11D08/ 11D10/ 11D12/ 11E03/ 11E05/ 11E07/ 11E09/ 11E11/ 11E13/ 11F02/ 11F04/ 11F06/ 11F08/ 11F10/ 11F12/ 11F14/ 11G03/ 11G05/ 11G07/ 11G09/ 11G11/ 11G13/ 11H02/ 11H04/ 11H06/ 11H08/ 11H10/ 11H12/ 11H14/ 11J03/ 11J05/ 11J07/ 11J09/ 11J11/ 11J13/ 11K02/ 11K04/ 11K06/ 11K08/ 11K10/ 11K12/ 11K14/ 11L03/ 11L05/ 11L07/ 11L09/ 11L11/ 11L13/ 11M04/ 11M06/ 11M08/ 11M10/ 11M12/ 11N05/ 11N07/ 11N09/ 11N11/ 11P06/ 11P08/ 11P10	Yes	No/ No	N/A	N/A	Analysis	APP-MV11-S3R-002	2.1.03.06.i-U3/4-EQRR-PCDXXX
Incore Instrument QuickLoc Assemblies (8 Locations)	RXS-MY-Y11 through Y18	Yes	-	N/A	N/A	Analysis	APP-MV01-S3R-002	2.1.03.06.i-U3/4-EQRR-PCDXXX
Source Range Detectors (4)	RXS-JE-NE001A/ NE001B/ NE001C/ NE001D	Yes	Yes/ Yes	1	E *	Type Testing & Analysis	APP-JE92-VBR-001 / APP-JE92-VBR-002	2.1.03.06.i-U3/4-EQRR-PCDXXX

Equipment Name[+]	Tag No.[+]	Seismic Cat. I [+]	Class 1E/ Qual. For Harsh Envir.[+ 3]	Envir. Zone [1]	Envir Qual Program [2]	Type of Qual.	EQ Reports	EQRR
Intermediate Range Detectors (4)	RXS-JE-NE002A/ NE002B/ NE002C/ NE002D	Yes	Yes/ Yes	1	E * S	Type Testing & Analysis	APP-JE92-VBR-001 / APP-JE92-VBR-002	2.1.03.06.i-U3/4-EQRR-PCDXXX
Power Range Detectors – Lower (4)	RXS-JE-NE003A/ NE003B/ NE003C/ NE003D	Yes	Yes/ Yes	1	E * S	Type Testing & Analysis	APP-JE92-VBR-001 / APP-JE92-VBR-002	2.1.03.06.i-U3/4-EQRR-PCDXXX
Power Range Detectors – Upper (4)	RXS-JE-NE004A/ NE004B/ NE004C/ NE004D	Yes	Yes/ Yes	1	E * S	Type Testing & Analysis	APP-JE92-VBR-001 / APP-JE92-VBR-002	2.1.03.06.i-U3/4-EQRR-PCDXXX

Notes:

[+] Excerpt from COL Appendix C Table 2.1.3-1

1. See Table 3D.5-1 of UFSAR
2. E = Electrical Equipment Program (limit switch and the motor operator, squib operator, solenoid operator)
   S = Qualified for submergence or operation with spray
   * = Harsh Environment
3. Dash (-) indicates not applicable
4. The Unit 3/4 EQRR are numbered “2.1.03.06.i-U3/4-EQRR-PCDXXX”

ITAAC 2.5.01.03e (Index No. 515) UIN.

ITAAC Statement

Design Commitment

3.e) The sensors identified on Table 2.5.1-3 are used for DAS input and are separate from those being used by the PMS and plant control system.

Inspections, Tests, Analyses

Inspection of the as-built system will be performed except for the core exit temperature sensors. Inspection of the core exit temperature sensors will be performed.

Acceptance Criteria

The sensors identified on Table 2.5.1-3 are used by DAS and are separate from those being used by the PMS and plant control system.

ITAAC Completion Description

Inspection of the as-built Diverse Actuation System (DAS) is performed to demonstrate that the sensors identified in Combined License (COL) Appendix C Table 2.5.1-3 (Attachment A), except for the core exit temperature sensors, are used for Diverse Actuation System (DAS) input and are separate from those being used by the Protection and Safety Monitoring System (PMS) and Plant Control System (PLS). Inspection of the core exit temperature sensors was performed to demonstrate that the sensors are used for Diverse Actuation System (DAS) input and are separate from those being used by the PMS and PLS

The DAS System Specification Document (References 1 and 2) requires that the sensors identified in Attachment A be used for DAS input and are separate and independent from the sensor inputs in the PMS and plant control system. Construction drawing SV3/4-DAS-J0-001, (References 3 and 4), illustrates the DAS sensor flow and indication architecture. An inspection of Quality Release and Certificate of Conformance documentation, construction drawings, and completed construction records was performed in accordance with SV3/4-DAS-ITR-800515 (References 5 and 6), to confirm that the sensors identified in Attachment A were installed per the DAS sensor input requirements of References 1 and 2 and are separate from those being used by the PMS and plant control system.

The inspection of the DAS Core Exit Temperature sensors was performed using a combination of methods in accordance with References 5 and 6. This included inspections of plant drawings and quality release and certificate of conformance records to ensure the Core Exit Temperature sensors designated for DAS are separate from those being used by the PMS and PLS.

The inspection results are documented in References 5 and 6 and confirm that the sensors identified in Attachment A are used by DAS and are separate from those being used by the PMS and plant control system.

References 1, through 6 are available for NRC inspection as part of the Unit 3 and Unit 4 ITAAC 2.5.01.03e Completion Package (References 8 and 9).

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant findings associated with the ITAAC. The ITAAC completion review is documented in the ITAAC Completion Package 2.5.01.03e (References 8 and 9) and is available for NRC review.

References (available for NRC inspection)

1. SV3-DAS-J4-001, “AP1000 Diverse Actuation System System Design Specification”, Revision 3
2. SV4-DAS-J4-001, “AP1000 Diverse Actuation System System Design Specification”, Revision 3
3. SV3-DAS-J0-001, “Diverse Actuation System (DAS) Sensor Flow and Indication Architecture”, Revision 1
4. SV4-DAS-J0-001, “Diverse Actuation System (DAS) Sensor Flow and Indication Architecture”, Revision 1
5. SV3-DAS-ITR-800515, “Unit 3 Inspection Results of Diverse Actuation System (DAS) Sensor Hardware Diversity: ITAAC 2.5.01.03e NRC Index Number: 515”, Revision 0
6. SV4-DAS-ITR-800515, “Unit 4 Inspection Results of Diverse Actuation System (DAS) Sensor Hardware Diversity: ITAAC 2.5.01.03e NRC Index Number: 515”, Revision 0
7. NEI 08-01, “Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52”, Revision 5 - Corrected
8. 2.5.01.03e-U3-CP-Rev0, “ITAAC Completion Package”
9. 2.5.01.03e-U4-CP-Rev0, “ITAAC Completion Package”

Attachment A
Excerpt from COL Table 2.5.1-3

Equipment Name	Tag Number
Reactor Coolant System (RCS) Hot Leg Temperature	RCS-300A
RCS Hot Leg Temperature	RCS-300B
Steam Generator 1 Wide-range Level	SGS-044
Steam Generator 1 Wide-range Level	SGS-045
Steam Generator 2 Wide-range Level	SGS-046
Steam Generator 2 Wide-range Level	SGS-047
Pressurizer Water Level	RCS-305A
Pressurizer Water Level	RCS-305B
Containment Temperature	VCS-053A
Containment Temperature	VCS-053B
Core Exit Temperature	IIS-009
Core Exit Temperature	IIS-013
Core Exit Temperature	IIS-030
Core Exit Temperature	IIS-034
Rod Control Motor Generator Voltage	PLS-001
Rod Control Motor Generator Voltage	PLS-002

ITAAC 2.5.05.02.i (Index No. 565) UIN.

ITAAC Statement

Design Commitment

2. The seismic Category I equipment identified in Table 2.5.5-1 can withstand seismic design basis dynamic loads without loss of safety function.

3.a) The Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function, for the time required to perform the safety function.

Inspections, Tests, Analyses

i) Not used.

ii) Type tests, analyses, or a combination of type tests and analyses of seismic Category I equipment will be performed.

iii) Inspection will be performed for the existence of a report verifying that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

i) Type tests, analysis, or a combination of type tests and analysis will be performed on Class 1E equipment located in a harsh environment.

ii) Inspection will be performed of the Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.

Acceptance Criteria

i) Not used.

ii) A report exists and concludes that the seismic Category I equipment can withstand seismic design basis dynamic loads without loss of safety function.

iii) A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

i) A report exists and concludes that the Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment. This equipment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

ITAAC Completion Description

This ITAAC requires that inspections, tests, and analyses be performed and documented to ensure the In-core Instrumentation System (IIS) equipment identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.5.5-1 (the Table) is designed and constructed in accordance with applicable requirements.

ii) A report exists and concludes that the seismic Category I equipment can withstand seismic design basis dynamic loads without loss of safety function.

Seismic Category I equipment in the Table requires type tests and/or analyses to demonstrate structural integrity and operability. Structural integrity of the passive seismic Category I mechanical equipment is demonstrated by analysis in accordance with American Society of Mechanical Engineers (ASME) Code Section III (Reference 2).

Safety-related (Class 1E) electrical equipment in the Table is seismically qualified by type testing combined with analysis in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard 344-1987 (Reference 3). This equipment includes safety-related (Class 1E) field sensors and the safety-related electrical cables and connector assemblies. The specific qualification method (i.e., type testing, analysis, or combination) used for each piece of equipment in the Table is identified in Attachment A. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the Updated Final Safety Analysis Report (UFSAR) Appendix 3D (Reference 4). The EQ Reports (Reference 5) identified in Attachment A contain applicable test reports and associated documentation and conclude that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

iii) A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

An inspection (Reference 13) was conducted to confirm that the seismic category I equipment identified in Table 2.5.5-1, the 38 Class 1E Incore Thimble Assemblies, were manufactured per the qualified design. The inspection verified the equipment make/model/serial number, as well as the as-designed anchorage point to the integrated grid assembly.

Attachment A identifies the EQRR (Reference 1) that was completed to verify the seismic Category I equipment listed in the Table, including anchorage, is seismically bounded by the tested or analyzed conditions, IEEE Standard 344-1987 (Reference 3), and NRC Regulatory Guide (RG) 1.100 (Reference 6).

i) A report exists and concludes that the Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment. This equipment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

The harsh environment Class 1E equipment in the Table is qualified by type testing and/or analyses. Class 1E electrical equipment type testing is performed in accordance with IEEE Standard 323-1974 (Reference 7) and RG 1.89 (Reference 8) to meet the requirements of 10 CFR 50.49. Type testing of safety-related equipment meets the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 3. Attachment A identifies the EQ program and specific qualification method for each piece of Class 1E electrical equipment located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the UFSAR Appendix 3D (Reference 4). EQ Reports (Reference 5) identified in Attachment A contain applicable test reports/analysis and associated documentation and conclude that the equipment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

The harsh environment Class 1E equipment in the Table is qualified by the type testing and/or analyses identified in the EQ Reports listed in Attachment A. Class 1E electrical equipment type testing is performed in accordance with IEEE Standard 323-1974 (Reference 7) and RG 1.89 (Reference 8) to meet the requirements of 10 CFR 50.49. Type testing of safety-related equipment meets the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 4. Attachment A identifies the EQ program and specific qualification method for each piece of Class 1E electrical equipment located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the UFSAR Appendix 3D (Reference 4). EQ Reports (Reference 5) and EQRR Reports (Reference 1) identified in Attachment A contain applicable test reports/analysis and associated documentation and conclude that the equipment and the associated wiring, cables, and terminations can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

Inspection is accomplished by verifying a quality assurance data package (Reference 14) exists that concludes that the equipment was constructed as per design.

Together, these reports (References 1, 5 and 14) provide evidence that the ITAAC Acceptance Criteria requirements are met:

- A report exists and concludes that the seismic Category I equipment can withstand seismic design basis dynamic loads without loss of safety function;
- A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions;
- A report exists and concludes that the Class 1E equipment identified in Table 2.5.5-1 as being qualified for a harsh environment. This equipment can withstand the environmental conditions that would exist before, during, and following a design basis

accident without loss of safety function for the time required to perform the safety function;

- A report exists and concludes that the Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.5.5-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

References 1, 5 and 14 are available for NRC inspection as part of the Unit 3 and Unit 4 ITAAC 2.5.05.02.i Completion Packages (References 9 and 10, respectively).

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This finding review, which included now-consolidated ITAAC Indexes 566, 567, 568, and 569, found no relevant ITAAC findings associated with this ITAAC.

References (available for NRC inspection)

1. EQ Reconciliation Reports (EQRR) as identified in Attachment A for Units 3 and 4
2. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section III, “Rules for Construction of Nuclear Power Plant Components,” 1998 Edition with 2000 Addenda
3. IEEE Standard 344-1987, “IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations”
4. Vogtle 3&4 Updated Final Safety Analysis Report Appendix 3D, “Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment”
5. Equipment Qualification (EQ) Reports as identified in Attachment A
6. Regulatory Guide 1.100, Rev. 2, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants"
7. IEEE Standard 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations”
8. Regulatory Guide 1.89, Rev 1, “Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants”
9. 2.5.05.02.i-U3-CP-RevX, “Completion Package for Unit 3 ITAAC 2.5.05.02.i [Index Number 565]”
10. 2.5.05.02.i-U4-CP-RevX, “Completion Package for Unit 4 ITAAC 2.5.05.02.i [Index Number 565]”
11. NEI 08-01, “Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52”
12. DCP_DCP_######, “Summary of IITA Equipment Qualification”
13. SVP_SVP_018473, “Incore Instrumentation Thimble Assemblies Seismic Qualification Summary”
14. APP-XXX-VQQ-XXX, Rev. X, “Quality Assurance Data Package”

Attachment A

System: In-core Instrumentation System (IIS)

Equipment Name +	Seismic Cat. I +	Class 1E/ Qual. For Harsh Envir. +	Envir. Zone [1]	Envir Qual Program [2]	Type of Qual.	EQ Reports	EQRR
Incore Thimble Assemblies (at least three assemblies in each core quadrant)	Yes	Yes[(4)]/Yes[(4)]	1	E * S	Type Tests & Analysis	DCP_DCP_###### (Harsh) SVP_SVP_018473 (Seismic)	2.5.05.02.i-U3-EQRR-PCDXXX

Notes:

+ Excerpt from COL Appendix C Table 2.5.5-1

2. See Table 3D.5-1 of UFSAR

3. E - Electrical Equipment Program
   S = Qualified for submergence or operation with spray
   * - Harsh Environment

4. The Unit 4 EQRR are numbered "2.5.05.02.i-U4-EQRR-PCDXXX"

5. Only applies to the safety-related assemblies. There are at least two safety-related assemblies in each core quadrant.

ITAAC 2.5.05.03b (Index No. 570) UIN.

ITAAC Statement

Design Commitment

3.b) The Class 1E cables between the Core Exit Temperature sensors, which are located within the incore thimble assemblies, and the connector boxes, which are located on the integrated head package, have sheaths.

Inspections/Tests/Analyses

Inspection of the Class 1E cables will be performed.

Acceptance Criteria

The Class 1E cables between the Core Exit Temperature sensors, which are located within the incore thimble assemblies, and the connector boxes, which are located on the integrated head package, have sheaths.

ITAAC Completion Description

Inspection of the Class 1E cables between the Core Exit Temperature sensors, which are located within the incore thimble assemblies, and the connector boxes, which are located on the integrated head package, is performed to verify that the Class 1E cables have sheaths.

The incore thimble assemblies and the connection panel located on the Integrated Head Package (IHP) are connected by 38 Class 1E head area cable assemblies (wires and connectors), which transmit the safety-related core exit temperature signals to the protection and safety monitoring system (PMS). The incore thimble assemblies contain Class 1E cables which connect the Core Exit Temperature sensors to the connector on the end of the incore thimble assemblies.

Design specifications require internal metallic sheaths that surround and separate the Class 1E thermocouple wires from non-Class 1E detector wires, which are contained within an external spiral wound sheath. The design specifications also include performance tests for overvoltage, insulation resistance, and continuity. Successful test results indicate that the sheaths protect against credible single faults between the Class 1E and non-Class 1E signals.

The Quality Release and Certificate of Conformance (References 1 and 2) verifies the head area cable assembly acceptance test results. The Field Service Report (References 3 and 4) verifies the head area cable assemblies were installed on the integrated head package in accordance with design drawings and installation specifications issued for construction, and work package requirements. The Quality Release and Certificate of Conformance (References 5 and 6) verifies that the in-vessel Class 1 E cables were installed within the incore thimble assemblies in accordance with design drawings and installation specifications and contains the incore thimble assemblies cable acceptance test results.

The Class 1E cables between the Core Exit Temperature sensors, which are located within the incore thimble assemblies, and the connector boxes, which are located on the integrated head package, are inspected to verify that the design specification and installation specifications are satisfied, to enable each cable to convey the safety-related core exit thermocouple signals to the PMS, as identified in the Combined License (COL) Appendix C ITAAC 2.5.05.03b, Design Description.

The inspections are performed and documented in accordance with manufacturer and vendor quality verification programs. The results of the inspections are documented in the Unit 3 and Unit 4 Principal Closure Documents (References 1 through 6) supporting the ITAAC 2.5.05.03b Completion Package (References 7 and 8). The inspections confirm that the Class 1E cables between the Core Exit Temperature sensors, which are located within the incore thimble assemblies, and the connector boxes, which are located on the integrated head package, have sheaths.

The Unit 3 and Unit 4 Principal Closure Documents (References 1 through 6) are available for NRC inspection as part of the Unit 3 and Unit 4 ITAAC 2.5.05.03b Completion Package.

List of ITAAC Findings

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found there were no relevant ITAAC findings associated with this ITAAC. The ITAAC completion review is documented in the ITAAC Completion Package for ITAAC 2.5.05.03b (References 7 and 8) and are available for NRC review.

References (available for NRC inspection)

1. SV3-EW25-VQQ-002, Rev 0, Quality Release & Certificate of Conformance
2. SV4-EW25-VQQ-002, Rev 0, Quality Release & Certificate of Conformance
3. SV3-MV10-S8R-001, Revision 0, AP1000 - Vogtle 3 Field Service Report - Integrated Head Package Field Assembly, (IHPFA)
4. SV3-MV10-S8R-001, Revision 0, AP1000 - Vogtle 4 Field Service Report - Integrated Head Package Field Assembly, (IHPFA)
5. SV3-JE90-VQQ-001, Rev. 1, “Quality Release & Certificate of Conformance – JE90”
6. SV4-JE90-VQQ-001, Rev. 1, “Quality Release & Certificate of Conformance – JE90”
7. 2.5.05.03b-U3-CP-Rev0, ITAAC Completion Package
8. 2.5.05.03b-U4-CP-Rev0, ITAAC Completion Package