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MAR 08 2013

Docket Nos.: 52-025
52-026

ND-13-0416
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:
Additional Electrical Penetration Assemblies (LAR-12-010S) Supplemental Information

Ladies and Gentlemen:

On September 28, 2012, in accordance with the provisions of 10 CFR 50.90, Southern Nuclear Operating Company (SNC), requested 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 proposed amendment will allow the installation of four new non-Class 1E electrical penetration assemblies (EPAs). The VEGP Units 3 and 4 License Amendment Request (LAR) 12-010 is consistent with LAR 12-01 submitted by South Carolina Electric & Gas Company (SCE&G) for Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 on August 29, 2012 [ADAMS Accession No. ML12244A011].

Based on discussions held with the NRC Staff reviewers, by letter dated February 11, 2013 [ML13044A358], SCE&G provided clarifications to the original VCSNS Units 2 and 3 LAR 12-01 to aid in the review of the original request. SNC is revising the VEGP Units 3 and 4 LAR to maintain consistency with the supplemental information provided in SCE&G's February 11, 2013 letter. Information supplementing Enclosure 1 of SNC's September 28, 2012 letter is provided in this letter and is added as Enclosure 4 of SNC LAR-12-010.

The information provided in the enclosure does not change the scope of, nor affect the technical evaluation in, the amendment request submitted on September 28, 2012, and does not warrant a revised No Significant Hazards Consideration determination. This letter contains no regulatory commitments.

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

Should you have any questions, please contact Mr. Wesley A. Sparkman at (205) 992-5061.

Mr. Brian H. Whitley states that he is a Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Brian H. Whitley

Brian H. Whitley

BHW/NH/kms

Sworn to and subscribed before me this 8th day of March, 2013

Notary Public: Kristin Marie Seibert

My commission expires: August 16, 2016



Enclosure 4: Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Supplemental Information for the License Amendment Request (LAR) Regarding Additional Electrical Penetration Assemblies (LAR-12-010S)

cc: Southern Nuclear Operating Company/ Georgia Power Company

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Southern Nuclear Operating Company

ND-13-0416

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Supplemental Information for the License Amendment Request (LAR)

Regarding

Additional Electrical Penetration Assemblies

(LAR-12-010S)

Based on discussions held with the NRC Staff reviewers, and the supplemental information provided by South Carolina Electric & Gas (SCE&G) on February 11, 2013 [ML13044A358], Southern Nuclear Operating Company (SNC) is providing this supplemental information to LAR-12-010 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4.

The supplemental information provided in this enclosure contains excerpts from the original SNC VEGP Units 3 and 4 LAR-12-010 submittal that have been revised to address questions by the NRC Staff. The revised LAR information is annotated by blue, underlined text for additions, and red, strike-through text for deletions. These changes are to the text contained within the original SNC LAR-12-010 submittal, and do not affect the Licensing Basis changes as initially proposed. Note that the questions were originally phrased by the NRC to reference the SCE&G LAR 12-01 submittal, and are annotated here for readability to reference SNC's LAR-12-010 submittal. These changes are depicted by using double strike-through black font for SCE&G text that is not applicable to SNC, followed immediately by bracketed black font for the applicable SNC text.

QUESTION # 1

10 CFR 50, Appendix A, Criterion 16 - Containment design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

In ~~LAR 12-004~~ [SNC LAR-12-010], section 4.2, Applicable Regulatory Requirements/Criteria identifies Criterion 16 as applicable but does not address specifically how the four new penetrations affect the compliance with GDC 16. Provide the justification for how the addition of four new electrical penetrations impacts the compliance with Criterion 16.

RESPONSE

In order to provide clarification that the additional electrical penetrations have no effect on the compliance with GDC 16, SNC is modifying and supplementing the information contained in the original LAR submittal dated September 28, 2012 as shown below. Please note that supplemental information is characterized by blue, underlined text, and deleted information is red, struck-through text.

From the September 28, 2012 letter, Enclosure 1, Page 9 of 12, add an additional paragraph as shown below:

Because GDC 5 is applicable to multi-unit plants that share systems, structures, or components important to safety, and the AP1000 units do not share systems, structures, or components important to safety, adding the four new EPAs does not affect compliance with GDC 5.

10 CFR 50, Appendix A, GDC 16, Containment design, requires that reactor containment and associated systems be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require. Because the additional new electrical penetration assemblies are similar

[in form, fit, and function to the existing electrical penetration assemblies as currently described in the UFSAR, the proposed change does not affect compliance with GDC 16.](#)

10 CFR 50, Appendix A, GDC 17, Electric power systems. An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

QUESTION #2

In ~~LAR-12-01~~ [SNC LAR-12-010], "Request for License Amendment and Exemption: Additional Electrical Penetration Assemblies," dated ~~August 29, 2012~~ [September 28, 2012], Page 3, Section 2, 3rd line, the applicant states that "The additional electrical penetrations would not be spares, but would facilitate the **increased number and size of electrical loads within the containment vessel.**" (emphasis added). However, in line 9 [10] of the same section, the applicant states that "No design changes to the electrical loads or instrumentation signals have been made inside containment by this requested change, which adds these four EPAs." Clarify whether there are additional electrical loads different from the ones approved as documented in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and if so, discuss when the applicant will present this new information to the NRC Staff.

RESPONSE

In order to provide clarification that the additional electrical penetrations are being added to support existing loads as described in the NUREG-1793, SNC is modifying and supplementing the information contained in the original LAR submittal dated September 28, 2012 as shown below. Please note that supplemental information is characterized by blue, underlined text, and deleted information is red, struck-through text.

From the September 28, 2012 letter, Enclosure 1, Page 3, the Subsection 2 "Detailed Description" section is modified to read as follows:

The proposed change would add four non-Class 1E containment EPAs. The new EPAs would require additional electrical penetration sleeves to be added to the containment vessel and shield building. The additional electrical penetrations would not be spares, but would facilitate the ~~increased~~ number and size of electrical loads within the containment vessel that had been incorporated into the design consistent with the design loads described in the AP1000 generic DCD. As the design details progressed, it was determined that the current number of containment vessel electrical penetrations cannot support all electrical loads and instrumentation signals inside containment which had previously been identified to the NRC as part of the AP1000 generic DCD. Specifically, two additional non-Class 1E Low Voltage Power and Control (LVP&C) and two non-Class 1E Instrumentation and Control (I&C) EPAs would be necessary. No additional design changes to the electrical loads or instrumentation signals have been made inside containment by this requested change, which adds these four EPAs. This change is necessary to allow for the addition of penetrations to support current loads, such as an increased number of Control Rod Drive Mechanisms (CRDMs), an increased CRDM fan size and number, and changes to the Containment Recirculation Cooling System (VCS) fan feed, that were previously approved as part of the AP1000 generic DCD Rulemaking. These changes maintain conformance with the design description of electrical penetrations in Section 8.3.1.1.6 of the Updated Final Safety Analysis Report (UFSAR).

QUESTION #3

Based on discussions with the Structural Engineering Branch, a concern was identified that the original submittal did not clearly address the proposed addition of the EPAs impact on the structural integrity of the associated buildings. Provide appropriate additional information to address the structural issue.

RESPONSE

In order to provide clarification of the impact of the electrical penetration assemblies on the structural integrity of the associated buildings, SNC is modifying and supplementing the information contained in the original LAR submittal dated September 28, 2012 as shown below. Please note that supplemental information is characterized by blue, underlined text, and deleted information is red, struck-through text.

From the September 28, 2012 letter, Enclosure 1, Page 5 of 12, the second paragraph under "Supporting Technical Details" is supplemented as shown below:

The addition of the four new EPAs and test isolation valves does not adversely affect the containment vessel's ~~or shield building's~~ design functions. Because the design requirements for these penetrations are the same as the current penetrations in the AP1000 design and have been found to be an acceptable method to protect containment integrity, this activity does not affect the containment vessel's ability to prevent the containment from exceeding its design pressure following postulated design basis accidents and therefore does not affect the containment vessel's ability to contain the release of airborne radioactivity and provide shielding for the reactor core and the reactor coolant system during normal operations. The design and leakage testing requirements for these additional penetrations are the same as for the current penetrations, and therefore do not affect the containment vessel's ability to provide a high degree of leak tightness and protect against postulated missiles from external sources. ~~The addition of the increased number of EPAs has been evaluated to confirm.~~ The additional penetrations are properly reinforced to the rules of ASME Section III, Subsection NE, the same as the current penetrations, such that the containment vessel will continue to withstand the loads and load combinations described in UFSAR Table 3.8.2-1. The additional penetrations are not explicitly modeled, consistent with the current structural model approach (UFSAR Subsection 3.8.2.4.1.2).

The additional penetrations are relatively small in comparison to the overall structural model used to evaluate the forces and moments in the shield and auxiliary buildings, ~~and the~~ These additional small penetrations are not explicitly modeled, consistent with the current structural model approach. In general, small penetrations in reinforced concrete are addressed by replacing the amount of reinforcement 'lost' at the penetration on each side of the penetration. In the case of the electrical penetrations, the details on the drawings provide for continuity of the reinforcement around the openings. The overall effect on the finite element analysis is small, as the openings do not significantly impact the overall stiffness of the model. Therefore, the shield and auxiliary buildings' design functions are not adversely affected by the addition of the proposed EPAs.