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SOUTHERN COMPANY

MAR 3 0 2012

Docket No.: 52-025

ND-12-0671
10 CFR 50.90

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 3
Preliminary Amendment Request (PAR):
Nuclear Island Basemat Thickness Tolerance (PAR-12-003)

Ladies and Gentlemen:

The U.S. Nuclear Regulatory Commission (NRC) issued the Vogtle Electric Generating Plant (VEGP) Unit 3 combined license (COL) (License No. NPF-91) to Southern Nuclear Operating Company (SNC) on February 10, 2012. SNC expects that a request for an amendment to the COLs for both VEGP Units 3 and 4 to revise the basemat thickness tolerances is imminent. The associated License Amendment Request (LAR) (LAR-12-003) letter is expected to be submitted no later than April 6, 2012.

Construction activities associated with pouring concrete for the nuclear island basemat structure affected by the proposed license amendment are scheduled to begin mid June 2012. SNC hereby submits a Preliminary Amendment Request, PAR-12-003, to allow construction activities to proceed in accordance with the current integrated schedule for Unit 3. In order to avoid unnecessary construction delays during the NRC's evaluation of the related license amendment request (LAR), the determination of whether the NRC has any objection to SNC proceeding with the installation of the proposed plant licensing basis modification identified in the PAR/LAR is requested to be provided by June 1, 2012. Delayed determination regarding this PAR could result in an additional delay in the construction of the nuclear island basemat structure and subsequent construction activities that are dependent upon the completion of the basemat structure.

The requested revisions are necessary to support changes identified during the surveying of the mudmat which forms the foundation upon which the basemat is constructed. A description, a reason for the change, and associated regulatory evaluations are contained in Enclosure 1 to this letter. To facilitate the staff's review of this activity, a proposed markup depicting the requested change to the licensing basis document is contained in Enclosure 2 to this letter. This PAR has been developed in accordance with guidance provided in Interim Staff Guidance on Changes during Construction Under 10 CFR Part 52, COL-ISG-25 [ML111530026], and corresponds

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accurately and technically with the above-mentioned LAR-12-003. The technical scope of this PAR is consistent with the technical scope of the LAR.

This letter does not contain any NRC commitments. Should you have any questions, please contact Mr. Wesley Sparkman at (205) 992-5061.

Mr. C. R. Pierce states that he is the 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

C. R. Pierce

CRP/ERG/dmw

Sworn to and subscribed before me this 30th *day of* March *2012*

Notary Public: Deborah A. Jaworke

My commission expires: October 24, 2012

Enclosure 1: Vogtle Electric Generating Plant (VEGP) Unit 3 – Preliminary Amendment Request Regarding Nuclear Island Basemat Thickness Tolerances
Enclosure 2: Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – LAR Licensing Basis Document Proposed Change

cc: Southern Nuclear Operating Company
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Southern Nuclear Operating Company

ND-12-0671

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Unit 3

Preliminary Amendment Request
Regarding
Nuclear Island Basemat Thickness Tolerances

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) is currently preparing a license amendment request (LAR) to change the Vogtle Electric Generating Plant (VEGP), Units 3 and 4, licensing basis documents associated with Combined License Nos. NPF-91 and NPF-92, respectively. Accordingly, SNC requests the determination of whether the NRC has any objection to proceeding with the installation of the proposed plant modification identified in the Preliminary Amendment Request (PAR) provided below which is consistent with the LAR to be provided by the date shown below.

PAR Request Number:	Station Name:	Unit Number(s):	PAR Request Date:
PAR–12-003	**VEGP**	☒ **3** ☐ **4**	March 30, 2012

1. NRC PAR Notification Requested Date (see Block 9 for basis): June 1, 2012

2. License Amendment Request References (as applicable):

☐ **LAR submittal date and SNC Correspondence Number:** _____

☒ **Expected LAR submittal date: on or before** April 6, 2012

3. Brief Description of Proposed Change:

The proposed change will change the upper tolerance on the Nuclear Island (NI) critical sections basemat thickness as identified in the VEGP Units 3 and 4 Final Safety Analysis Report (FSAR), which includes plant-specific Design Control Document (DCD), Subsection 3.8.5 and associated Table 3.8.5-3, Note 2, where this thickness tolerance value is identified. The note is designated as Tier 2* design information and identifies the NI critical sections basemat thickness upper tolerance as +1 inch. The proposed change is to increase this tolerance to +4 inches.

4. Reason for License Amendment Request:

The AP1000 nuclear island consists of three seismic Category I structures founded on a common basemat. The three structures that make up the nuclear island are the coupled auxiliary and shield buildings, the steel containment vessel, and the containment internal structures. The nuclear island is shown in Final Safety Analysis Report or FSAR (which includes the plant-specific Design Control Document or DCD) Figure 3.7.1-14. For ease of construction, the foundation is built on a mudmat. The mudmat is lean, nonstructural concrete and rests upon the load-bearing soil.

The construction tolerance included in the note is appropriate for a section using forms to determine the concrete thickness. The basemat concrete is placed without forms on top of the mudmat with the mudmat at its as-built location. The construction tolerance for this method of construction needs to be increased to account for the variability of the mudmat surface and relative settlement at the time of concrete placement.

Recent surveys of the mudmat upon which the basemat is to be constructed have indicated that the upper surface is not as level as expected. With the identified variations in the top surface of the mudmat, the existing thickness tolerances for the nuclear island (NI) basemat critical locations provided in the FSAR/plant-specific DCD Table 3.8.5-3, Note 2 cannot be obtained while providing a level upper surface of the basemat upon which the rest of the nuclear island (NI) is to rest. Since a level upper surface is desired

for construction of the remainder of the NI, the upper tolerance for the basemat thickness is requested to be increased.

This proposed change is consistent with ACI 117-90. A review of ACI 117-90 indicates that the identification of a +1 inch upper tolerance value for the NI basemat thickness is very conservative and is aligned with the tolerances for formed structural elements instead of the tolerance for structural elements cast against soil. Dimensions of structural elements cast against soil often require greater tolerance due to the variability of the soil surfaces that the concrete is cast against. This is proving to be the case for the Vogtle NI mudmat which is set upon a soil foundation.

The increase in the basemat thickness construction tolerance may result in slightly more concrete than the nominal basemat design. This additional concrete will not have an adverse impact on the strength of the basemat or the response of basemat to loads, including seismic loads, from the nuclear island structures supported by the basemat. The basemat design with the increase in the basemat thickness construction tolerance remains in compliance with ACI-349. No increase in structural reinforcement is required to compensate for the additional concrete. The additional concrete mass does not have an adverse impact on the seismic design spectra or the structural analysis of the basemat or other nuclear island structures.

The increase in basemat thickness construction tolerance has no impact on the finite element analysis methods used to analyze the nuclear island structures. The modeling of the structures is not impacted. The analysis of the reactor coolant system and core to normal operation and postulated accident conditions is not impacted by the increase in basemat thickness construction tolerance.

5. **Is Exemption Request Required?** ☐ **Yes** ☒ **No**

   If Yes, Briefly Describe the Reason for the Exemption. Not Applicable

6. **Identify Applicable Precedents:** No precedents identified.

7. **Preliminary Assessment of Significant Hazards Consideration [10 CFR 50.92(c)]:**

   The proposed LAR changes would amend Combined Licenses Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively, in regard to increasing the upper tolerance on the thickness of the nuclear island (NI) basemat critical sections as identified in Final Safety Analysis Report (and plant-specific Design Control Document or DCD) Table 3.8.5-3, Note 2, which is Tier 2* information. An increase in the upper tolerance is requested in order to directly provide a level upper surface of the basemat upon which the rest of the NI is to rest.

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

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

      Response: No

      As indicated in FSAR (plant-specific DCD) Subsection 3.8.5.5, the design function of the basemat is to provide the interface between the nuclear island

structures and the supporting soil or rock. The basemat transfers the load of nuclear island structures to the supporting soil or rock. The basemat transmits seismic motions from the supporting soil or rock to the nuclear island. The revision of the basemat construction tolerance does not have an adverse impact on the response of the basemat and nuclear island structures to safe shutdown earthquake ground motions or loads due to anticipated transients or postulated accident conditions. The revision of the basemat construction tolerance does not impact the support, design, or operation of mechanical and fluid systems. There is no change to plant systems or the response of systems to postulated accident conditions. There is no change to the predicted radioactive releases due to normal operation or postulated accident conditions. The plant response to previously evaluated accidents or external events is not adversely affected, nor does the change described create any new accident precursors. Therefore, there is no 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 change is to increase the construction tolerance for the basemat thickness. The revision of the basemat construction tolerance does not change the design of the basemat or nuclear island structures. The revision of the basemat construction tolerance does not change the design function, support, design, or operation of mechanical and fluid systems. The revision of the basemat construction tolerance does not result in a new failure mechanism for the basemat or new accident precursors. As a result, the design function of the basemat is not adversely affected by the proposed change. Therefore, the proposed change will 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 revision in the basemat thickness construction tolerance does not have an adverse impact on the strength of the basemat. The increase in the basemat thickness construction tolerance does not have an adverse impact on the seismic design spectra or the structural analysis of the basemat or other nuclear island structures. The revision in the basemat thickness construction tolerance has no impact of the analysis of the nuclear island for sliding or overturning. As a result, the design function of the basemat is not adversely affected by the proposed change. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the proposed changes present no 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.

8. Preliminary Assessment of Categorical Exclusion from Environmental Review [10 CFR 51.22]:

The proposed amendment would revise the construction tolerance for the basemat concrete thickness. The basemat is located approximately 40 feet below grade underneath the nuclear island. The increase in the basemat thickness construction tolerance will not change the materials used in the basemat or the construction methods. The nature of this change is such that it will not produce conditions which could result in adverse environmental impact either during construction or subsequently during plant operation. This change would only affect the basemat and would have no effect on any plant effluents that may be released offsite, or on any aspects of plant design or operation that would affect individual or cumulative occupational radiation exposure. Furthermore, as discussed in Section 4.1 of License Amendment Request LAR-12-003, the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c).

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, facility construction and operation following implementation of the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

9. Impact of Change on Installation and Testing Schedules:

The project schedule currently identifies a near-term impact to the scheduled Nuclear Island (NI) basemat work for Vogtle Unit 3. The safety-related concrete pour for the NI basemat is forecast for mid June. However, this is a fluid date that may fluctuate based on the achievement of activities onsite. As such, the NRC PAR Notification Requested Date is as shown in Block 1. As this date approaches, communication and coordination will be necessary to update this schedule information.

Regardless of the date of the concrete pour, it would be a significant impact to pour other than a level surface. Thus, inability to accept the requested change to the upper surface thickness tolerances for the critical locations of the basemat would result in a delay in the construction of the basemat and subsequent construction activities that are dependent upon the completion of the basemat.

No testing is impacted by the change to the NI basemat thickness tolerances.

10. Impact of Change on ITAAC:

The change is specific to Tier 2* information in the FSAR (DCD) and does not impact the ITAAC related to the Nuclear Island (NI) structure basemat.

11. **Additional Information:** None.

Southern Nuclear Operating Company

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Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

LAR

Licensing Basis Document Proposed Change

This enclosure includes this cover page and 1 page showing proposed licensing basis document change.

Marked-up FSAR (DCD) Table 3.8.5-3 (Note 2)

*[2. The thickness of these sections is 6'0" with a construction tolerance of ~~+1~~+4 inches, -3/4 inch.]**