

Brian H. Whitley
Director
Regulatory Affairs

Southern Nuclear
Operating Company, Inc.
42 Inverness Center Parkway
Post Office Box 1295
Birmingham, AL 35242

Tel 205.992.7079
Fax 205.992.5296



JAN 22 2013

Docket No.: 52-025

ND-13-0176
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):
Basemat Shear Reinforcement Design Details (PAR-13-004)

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 recently (January 18, 2013) submitted an associated request for a license amendment (LAR-13-004) to the COLs for both VEGP Units 3 and 4 to revise the structural criteria code for anchoring of headed shear reinforcement bar within the nuclear island basemat concrete.

Construction activities associated with pouring concrete for the nuclear island basemat structure affected by the proposed license amendment are scheduled to begin March 6, 2013. SNC hereby submits a Preliminary Amendment Request, PAR-13-004, 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 modification identified in the PAR/LAR is requested to be provided by January 28, 2013. 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.

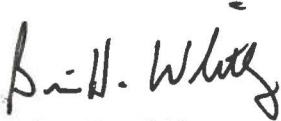
The requested revisions are necessary to support changes identified during a review of the design details related to installation of shear reinforcement bar. A description, a reason for the change, and associated regulatory evaluations are contained in Enclosure 1 to this letter. This PAR has been developed in accordance with guidance provided in Interim Staff Guidance on Changes during Construction Under 10 CFR Part 52, COL-ISG-25 [ML111530026], and corresponds accurately and technically with the above-mentioned LAR-13-004. 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. Brian Meadors at (205) 992-7331.

Mr. Brian H. Whitley states that he is the Director of Regulatory Affairs for 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

BHW/ERG/kms

Sworn to and subscribed before me this 22nd day of January 2013

Notary Public: Kristin Marie Seibert

My commission expires: August 16, 2016

Enclosure 1: Vogtle Electric Generating Plant (VEGP) Unit 3 – Preliminary Amendment
Request Regarding Basemat Shear Reinforcement Design Details

cc: Southern Nuclear Operating Company/ Georgia Power Company

Mr. S. E. Kuczynski (w/o enclosures)

Mr. J. A. Miller

Mr. D. A. Bost (w/o enclosures)

Mr. B. L. Ivey

Mr. M. D. Rauckhorst (w/o enclosures)

Mr. D. H. Jones (w/o enclosures)

Mr. J. R. Johnson (w/o enclosures)

Mr. T. E. Tynan

Mr. D. M. Lloyd

Mr. B.H. Whitley

Mr. C. R. Pierce

Mr. D. L. Fulton

Mr. C. H. Mahan

Ms. A. G. Aughtman

Mr. M. C. Medlock

Mr. W. A. Sparkman

Mr. J. M. Giddens

Document Services RTYPE: GOV0208

File AR.01.02.06

Nuclear Regulatory Commission

Mr. V. M. McCree (w/o enclosures)

Mr. F. M. Akstulewicz (w/o enclosures)

Mr. M. E. Tonacci (w/o enclosures)

Mr. R. G. Joshi

Ms. D. L. McGovern

Mr. B. M. Bovol

Ms. M. A. Sutton

Mr. L. M. Cain

Mr. J. D. Fuller

Mr. G. Khouri

Mr. C. Abbott

Mr. C. Huffman

State of Georgia

Mr. J. H. Turner

Oglethorpe Power Corporation

Mr. M. W. Price

Mr. K. T. Haynes

Municipal Electric Authority of Georgia

Mr. J. E. Fuller
Mr. S. M. Jackson

Dalton Utilities

Mr. D. Cope

Shaw Stone & Webster, Inc.

Mr. M. Glover (w/o enclosures)
Mr. G. Grant (w/o enclosures)
Ms. K. Stoner (w/o enclosures)
Mr. C. A. Castell

Westinghouse Electric Company, LLC

Mr. T. C. Geer (w/o enclosures)
Mr. T. H. Dent (w/o enclosures)
Mr. P. A. Russ
Mr. R. A. DeLong
Mr. S. A. Bradley
Mr. T. J. Ray

Other

Mr. J. S. Prebula, Bechtel Power Corporation (w/o enclosures)
Mr. R. W. Prunty, Bechtel Power Corporation
Ms. K. K. Patterson, Tetra Tech NUS, Inc.
Dr. W. R. Jacobs, Jr., Ph.D., GDS Associates, Inc.
Mr. S. Roetger, Georgia Public Service Commission
Ms. S. W. Kernizan, Georgia Public Service Commission
Mr. K. C. Greene, Troutman Sanders
Mr. S. Blanton, Balch Bingham
Ms. A. Monroe, South Carolina Electric & Gas Company
Mr. B. Kitchen, Duke Energy
Mr. S. Franzone, Florida Power & Light

Southern Nuclear Operating Company

ND-13-0176

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Unit 3

Preliminary Amendment Request

Regarding

Basemat Shear Reinforcement Design Details

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) has recently submitted 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: PAR-13-004	Station Name: VEGP	Unit Number(s): <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4	PAR Request Date: January 22, 2013
1. NRC PAR Notification Requested Date (see Block 9 for basis): January 28, 2013			
2. License Amendment Request References (as applicable): <input checked="" type="checkbox"/> LAR submittal date and SNC Correspondence Number: January 18, 2013, ND-13-0157 <input type="checkbox"/> Expected LAR submittal date:			
3. Brief Description of Proposed Change: <p>The proposed changes revise the requirements for development of basemat shear reinforcement in the licensing basis from ACI 349 Appendix B to ACI 318-11, Section 12.6. The use of ACI 318 criteria for headed reinforcement results in longer shear ties and thicker concrete in areas below the elevator pits and a sump in the nuclear island basemat for the radiologically controlled area of the auxiliary building. The thicker concrete is accomplished by raising the floor of the elevator pits and sump in the nuclear island basemat resulting in a minor reduction in volume of the sump. The requirements for concrete cover over the reinforcement bars are also changed.</p> <p>A comprehensive description of the proposed changes is in the associated license amendment request, "Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4, Request for License Amendment: Basemat Shear Reinforcement Design Details (LAR-13-004)," dated January 18, 2013, SNC correspondence number ND-13-0157.</p>			
4. Reason for License Amendment Request: <p>The AP1000 design (as incorporated into the Updated Final Safety Analysis Report (UFSAR)) includes the use of headed shear reinforcement. The heads were provided as a replacement for seismic hooks on shear stirrups. To clearly address the design of headed reinforcement in the AP1000 basemat design, changes are proposed for the design requirements and licensing basis for headed shear reinforcement in the nuclear island basemat.</p> <p>ACI 318-11 Section 12.6 is titled "Development of Headed and Mechanically Anchored Deformed Bars in Tension." The requirements in this section were developed specifically for headed and anchored deformed bars used in reinforcement. These state-of-the-art requirements are more prescriptive than the ACI 349 Appendix B requirements. ACI 318</p>			

is a consensus standard for design of reinforced concrete structures and is being narrowly applied specifically for development of headed shear reinforcement. The provisions in Section 12.6 were validated based on testing and analysis prior to incorporation into the ACI 318 Code in conformance with the requirements and practices of the American Concrete Institute. The provisions in ACI 318-11 Section 12.6 and the process used to develop these requirements are in compliance with General Design Criteria 1 for the use of quality standards commensurate with the importance of the safety functions to be performed.

The narrow application of ACI 318-11 Section 12.6 provides for adequate development of the headed shear reinforcement to provide ductile behavior consistent with the requirements of ACI 349-01 Chapter 21. The concrete failure modes described in ACI 349-01 Appendix B are considered by incorporation of the requirements specified in ACI 318-11 Section 12.6. The design of the shear reinforcement sizing, spacing, and detailing continues to be governed by the requirements of ACI 349-01, including Chapter 21 as provided by the commitments specified in the UFSAR.

The licensing basis requirement for two inches of concrete cover for structures that are located below grade elevation is revised to state that concrete cover in the design will conform to ACI 349-01 requirements for concrete exposed to earth or weather. The change in the minimum concrete cover requirement is to accommodate a longer shear reinforcement development length. The ACI 349 requirements in Chapter 7 include tolerances and permit a lower value than described in the licensing basis for minimum cover. The ACI Code minimum cover requirements have been developed to provide sufficient protection and the thicker cover provided in Subsection 3.8.4.6.1.2 of the UFSAR is not needed.

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 amendment would depart from plant-specific Design Control Document (DCD) Tier 2* and associated Tier 2 material incorporated into the Updated Final Safety Analysis Report (UFSAR), by revising the structural analysis requirements to provide alternative requirements for development of headed shear reinforcement within the nuclear island basemat concrete.

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

The design function of the nuclear island 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 change of the requirements for anchoring basemat shear reinforcement 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 change of the requirements for anchoring basemat shear reinforcement 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, 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 change is to provide the requirements for anchoring nuclear island basemat shear reinforcement. The change of the requirements for anchoring basemat shear reinforcement does not change the design of the basemat or nuclear island structures except to a limited extent in the concrete below the elevator pits and auxiliary building sump. The change of the requirements for anchoring basemat shear reinforcement does not change the design function, support, design, or operation of mechanical and fluid systems. The change of the requirements for anchoring basemat shear reinforcement 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 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

No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the proposed changes, thus, no margin of safety is reduced. Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

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

The proposed amendment would depart from plant-specific Design Control Document (DCD) Tier 2* and associated Tier 2 material incorporated into the Updated Final Safety Analysis Report (UFSAR), by revising the structural analysis requirements to provide alternative requirements for development of headed shear reinforcement within the nuclear island basemat concrete.

This review has determined that the proposed change requires an amendment from the COL; however, a review of the anticipated construction and operational effects of the proposed amendment has determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

(i) There is no significant hazards consideration.

As documented in Section 4.3, Significant Hazards Consideration, of the license amendment request (LAR-13-004), an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." The Significant Hazards Consideration determined that (1) the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the proposed amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

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

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

The proposed changes to the requirements for anchoring nuclear island basemat shear reinforcement do not change walls, floors, or other structures which provide shielding in the auxiliary building. Plant radiation zones are not affected, nor are there any changes to the controls required under 10 CFR Part 20 that preclude a significant increase in occupational radiation exposure. Therefore, the proposed amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the proposed amendment, it has been determined that anticipated construction and operational effects of the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

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 early March. 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 not have completed the shear reinforcement bar installation in accordance with the design details requested by the LAR. Thus, inability to accept the requested change to the headed shear reinforcement bar 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 headed shear reinforcement bar design details.

10. Impact of Change on ITAAC:

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

11. Additional Information: None.