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

SOUTHERN COMPANY

MAR 0 1 2013

Docket No.: 52-025

ND-13-0440
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):
Turbine Building Eccentric and Concentric Bracing (PAR-13-005)

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 (February 8, 2013) submitted an associated request for a license amendment (LAR-13-005, SNC correspondence ND-13-0260) to the COLs for both VEGP Units 3 and 4 to revise the bracing design in the non-seismic turbine building main area to use a system comprised of a combination of eccentrically braced frames and special concentrically braced frames, and to change the structural design code to a code that includes adequate provisions for the new bracing system. A supplement to this request (LAR-13-005S, SNC correspondence ND-13-0344) was submitted on February 15, 2013 to correct a deficiency in Enclosure 1, Section 4.3, Significant Hazards Consideration.

SNC is submitting a Preliminary Amendment Request, PAR-13-005, to preserve options for improvements in the construction schedule for Unit 3 and avoid possible 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 proposed plant licensing basis changes identified in the PAR/LAR is requested to be provided by April 19, 2013. Delayed determination regarding this PAR could result in an additional delay in the construction of the turbine building structure and subsequent construction activities that are dependent upon the completion of the turbine building structure.

The requested revisions support changes identified during the development of the detailed turbine building design. A description of the requested change, the reason for the change, and the 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-13-005. The technical scope of this PAR is

consistent with the technical scope of the LAR as accepted by the NRC for technical review [ML13051A373]. Section 9 of Enclosure 1 discusses the scope of the "no objection" sought in this PAR.

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

Mr. Brian H. Whitley states that he is a 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

B. H. Whitley

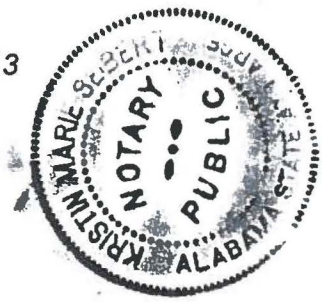
Brian H. Whitley

BHW/NH/kms

Sworn to and subscribed before me this 1st *day of* March *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 Turbine Building Eccentric and Concentric Bracing (PAR-13-005)

cc: Southern Nuclear Operating Company/ Georgia Power Company
Mr. S. E. Kuczynski (w/o enclosure)
Mr. J. A. Miller
Mr. D. A. Bost (w/o enclosure)
Mr. B. L. Ivey
Mr. M. D. Rauckhorst (w/o enclosure)
Mr. J. T. Gasser (w/o enclosure)
Mr. D. H. Jones (w/o enclosure)
Mr. J. R. Johnson (w/o enclosure)
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 enclosure)
Mr. F. M. Akstulewicz (w/o enclosure)
Mr. M. E. Tonacci (w/o enclosure)
Mr. R. G. Joshi
Ms. D. L. McGovern
Mr. B. M. Bavol
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

CB&I
Mr. M. Glover (w/o enclosure)
Mr. G. Grant (w/o enclosure)
Ms. K. Stoner (w/o enclosure)
Mr. C. A. Castell

Westinghouse Electric Company, LLC
Mr. T. C. Geer (w/o enclosure)
Mr. T. H. Dent (w/o enclosure)
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 enclosure)
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-13-0440

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Unit 3

Preliminary Amendment Request
Regarding
Turbine Building Eccentric and Concentric Bracing
(PAR-13-005)

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 submitted on February 8, 2013 and LAR supplement submitted on February 15, 2013.

PAR Request Number:	Station Name:	Unit Number(s):	PAR Request Date:
PAR–13-005	**VEGP**	☒ **3** ☐ **4**	April 19, 2013

1. NRC PAR Notification Requested Date (see Block 9 for basis): April 19, 2013

2. License Amendment Request References (as applicable):

☒ **LAR submittal date and SNC Correspondence Number:** February 8, 2013, ND-13-0260, as supplemented by ND-13-0344, dated February 15, 2013.

☐ **Expected LAR submittal date:**

3. Brief Description of Proposed Change:

The proposed changes revise the COLs to use concentrically and eccentrically braced frames in the turbine building main area. The structural design code is also changed to a code that includes adequate provisions for the new bracing system. The changes requested to be considered by this PAR are consistent with the changes detailed in the associated LAR-13-005.

4. Reason for License Amendment Request:

UFSAR Section 3.7.2.8.3 describes the main area of the turbine building as an "eccentrically braced steel frame structure." A commitment during the design of the AP600 was made at the request of the NRC to design the turbine building with eccentrically braced frames as a way to prevent the turbine building from collapsing onto the Nuclear Island (NI). This commitment to use Eccentrically Braced Frames (EBF) was made to address concerns over the adequacy of the 1991 Uniform Building Code (UBC) provisions for concentrically braced frames. The AP1000 Final Safety Evaluation Report (FSER) (NUREG-1793, 2004) states that EBF were one measure to help "prevent the turbine building from jeopardizing the safety function of the NI structures during a safe shutdown earthquake (SSE) event."

Since that time, the first bay was redesigned to seismic Category II. This change to the first bay prevents the turbine building from collapsing on the NI. This change was communicated to the NRC via the response to Request for Additional Information (RAI) RAI-SRP3.7.1-SEB1-15 and is included in DCD Rev 19.

Geometric restrictions preclude the exclusive use of EBF in the turbine building main area. The American Institute for Steel Construction (AISC) requirement for out-of-plane lateral support for EBF cannot be achieved in all areas of the turbine building.

A combination of Special Concentrically Braced Frames (SCBF) and EBF is proposed below the operating deck in the East–West direction instead of exclusively using EBF due to geometric restrictions between the condensers preventing the use of AISC required out-of-

plane lateral supports for EBF. EBF would continue to be exclusively used under the operating deck in the critical North-South direction. SCBF would be used above the main area operating deck due to the inability to provide out-of-plane lateral support at the higher elevations. Using a combination of EBF and SCBF under the turbine generator operating deck in the East-West direction will not impact the protection provided by the EBF used exclusively under the operating deck in the critical North-South direction.

A proposed design code change to the 2006 edition of the International Building Code (IBC-06), with the supporting codes of AISC 341-05, AISC 360-05 (tornado loading) and American Society of Civil Engineers (ASCE) Standard 7-05 (earthquake considerations) will be used collectively to develop a consistent, compatible design for a mixed (EBF and SCBF) bracing system. ASCE 7-05 specifies a response modification factor (R Factor) of 6.0 for mixed bracing systems; thus, the R Factor for the turbine building will be modified accordingly.

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

If Yes, Briefly Describe the Reason for the Exemption. An exemption is requested because LAR-13-005 requests a departure from DCD Tier 1 information, as provided in 10 CFR Part 52, Appendix D, Design Certification Rule for the AP1000 Design. Specifically, a plant-specific departure from DCD Tier 1 Section 3.3 would describe a mix of concentrically and eccentrically braced framing.

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

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

The proposed changes would revise the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Combined Licenses to use concentrically and eccentrically braced frames in the turbine building main area and modify the applicable design code. The proposed changes involve departures from Tier 2, Tier 1, and COL Appendix C.

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 turbine building bracing design is changed to a mixed bracing system which uses special concentric and eccentric bracing. The turbine building does not contain safety-related systems or components. The main area of the turbine building continues to meet its design function of preventing a turbine building collapse from impairing the integrity of seismic Category I structures, systems, or components. The first bay of the turbine building is designed to prevent the collapse of the main area of the Turbine Building onto the Nuclear Island during a seismic event. The proposed changes do not affect or impact this design capability. Therefore, the response of the safety related systems, structures and components in the Nuclear Island to earthquakes and postulated accidents are not affected by the bracing of the turbine building. Based on the above, there is no change in the probability of an accident previously evaluated. The activity does not introduce a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that result in significant fuel cladding failures. Accordingly, there

is no change in the consequences of an accident 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 turbine building bracing design is changed to a mixed bracing system which uses Special Concentrically Braced Framing (SCBF) and Eccentrically Braced Framing (EBF). The main area of the turbine building continues to meet its design function of preventing a turbine building collapse from impairing the integrity of seismic Category I structures, systems, or components. The design function of the turbine building first bay to provide the intended limitations to a potential collapse onto the nuclear island during a seismic event is retained. The turbine building structure does not involve any accident initiating component, and therefore, changes to use SCBF and EBF would not introduce new accident components or faults.

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

Use of a mixed bracing system and changing the structural code design for the turbine building main area continue to meet the design function of preventing a turbine building collapse from impairing the integrity of seismic Category I Structures, Systems, and Components. In addition, the first bay of the turbine building continues to be designed to seismic Category II requirements to prevent a turbine building collapse from impairing the integrity of the seismic Category I nuclear island structures, systems and components. This portion of the turbine building and its design is unchanged by the proposed amendment. Maintaining the seismic Category II rating for the turbine building first bay, along with continuing to meet the design function for the non-safety, non-seismic design of the turbine building main area preserves the current structural safety margins.

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 various elements of the certification information in Tier 1 of the generic AP1000 DCD and amend the corresponding elements in Appendix C of the VEGP Units 3 and 4 COLs. The proposed changes to Tier 1, Tier 2, and COL Appendix C material make changes related to the turbine building main area bracing design and turbine building main area design codes and requirements. The

proposed changes would modify the design codes for the turbine building main area structure to allow a mixed bracing system that would use Special Concentrically Braced Framing (SCBF) and Eccentrically Braced Framing (EBF).

This review has determined that the proposed change would require 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-13-005S), 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 the turbine building main area bracing to use eccentrically braced frames and special concentrically braced frames and change to associated design codes. The changes to the turbine building main area bracing affect features of the turbine building that are associated with the structural design and are unrelated to any aspects of plant construction or operation that would introduce any changes 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, these changes do not 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 structure of the turbine building main area only affect areas of the plant that contain non-radioactive plant systems. Consequently, these changes have no impact on individual or cumulative occupational radiation exposure during plant operation. Therefore, it is concluded that 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), an environmental impact statement or environmental assessment of the proposed amendment is not required.

9. Impact of Change on Installation and Testing Schedules:

Remote fabrication of turbine building exterior wall sections in accordance with the design changes requested in LAR-13-005 is underway. This PAR allows the licensee to proceed with construction of the turbine building structure, including placing the turbine building column baseplates, setting and fastening the fabricated wall sections and columns upon these baseplates, welding structural elements to the baseplates, and grouting the baseplate assemblies.

No testing is impacted by the change to the turbine building bracing design.

10. Impact of Change on ITAAC:

The proposed activity would change the turbine building bracing design to use a combination of special concentric and eccentric bracing, and modify the structural design code. This activity results in changes to plant-specific Tier 1 and COL Appendix C, Section 3.3 information.

Tier 1 and COL Appendix C, Section 3.3, provide the design description of the nuclear island structures, annex building, radwaste building, turbine building, and diesel generator building, and describe the physical arrangement of the turbine building that is verified through Tier 1 and COL Appendix C, ITAAC Table 3.3-6, Item 1. Because this activity changes the bracing design to use a combination of special concentric and eccentric bracing, Tier 1 and COL Appendix C, Section 3.3, would be revised to describe a mix of concentrically and eccentrically braced framing.

Tier 1 and COL Appendix C, Section 3.3, ITAAC Table 3.3-6, Item 12 provides verification that the extended turbine generator axis intersects the shield building. LAR-13-005 does not change the orientation of the turbine generator axis relative to the shield building.

Tier 1 and COL Appendix C, Section 3.3, ITAAC Table 3.3-6, Item 13 provides verification of the minimal horizontal clearance separating the structural elements of the turbine, annex and radwaste buildings and the nuclear island structure. This separation permits horizontal motion of the buildings in the safe shutdown earthquake without impact between structural elements of the buildings. LAR-13-005 does not change the separation requirements of this ITAAC.

11. **Additional Information:** None.