Southern Nuclear
Operating Company, Inc.
42 Inverness Center Parkway
Birmingham, AL 35242

June 1, 2015

Docket Nos.: 52-025
52-026

ND-15-0976
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 Units 3 and 4
Preliminary Amendment Request (PAR):
Use of AWS D1.1-2000 Criteria for Structural Welds (PAR-15-009)

Ladies and Gentlemen:

The U.S. Nuclear Regulatory Commission (NRC) issued the Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4 combined licenses (COLs) (License Nos. NPF-91 and NPF-92) to Southern Nuclear Operating Company (SNC) on February 10, 2012.

By letter dated May 26, 2015, SNC submitted a request for a license amendment (LAR-15-009, SNC correspondence ND-15-0903) to revise VEGP Units 3 and 4 Updated Final Safety Analysis Report (UFSAR) to provide for use of American Welding Society (AWS) D1.1-2000, *Structural Welding Code-Steel*, in lieu of the AWS D1.1-1992 edition identified in AISC N690-1994. This request was supplemented on May 28, 2015 (LAR-15-009S, SNC correspondence ND-15-0968), to revise the Tier 2* designations of some of the proposed changes to the UFSAR.

SNC is submitting a Preliminary Amendment Request (PAR), PAR-15-009, to minimize further construction delays for both Units 3 and 4 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 construction based on the proposed plant licensing basis changes identified in the LAR is requested on or before June 12, 2015. Welding dependent on AWS D1.1-2000 provisions is currently on hold and delayed determination regarding this PAR will result in continued delay in the construction completion of VEGP Units 3 and 4 structures.

A description of the proposed change and the reason for the change are contained in Enclosure 1 to this letter. This PAR has been developed in accordance with guidance provided in the most recent revision to the Interim Staff Guidance on Changes during Construction Under 10 CFR Part 52, COL-ISG-25 [ML13045A125], and corresponds accurately and technically with the above-mentioned LAR-15-009 and its supplement LAR-15-009S. The technical scope of this PAR is consistent with the technical scope of the submitted LAR. Section 7 of Enclosure 1 identifies 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. Jason Redd at (205) 992-6435.

Mr. Wesley A. Sparkman states that: he is the Regulatory Affairs Licensing Manager, Nuclear Development, of Southern Nuclear Operating Company; he 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

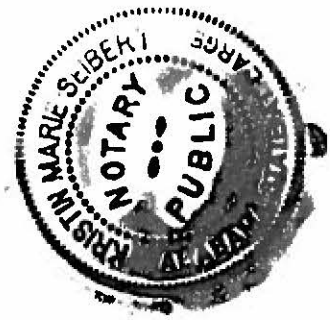
Wesley A. Sparkman

WAS/ERG/ljs

Sworn to and subscribed before me this 1st *day of* June, *2015*

Notary Public: Kristin Marie Seibert

My commission expires: August 16, 2016



Enclosure 1: Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Preliminary Amendment Request Regarding the Use of AWS D1.1-2000 Criteria for Structural Welds (PAR-15-009)

cc:

Southern Nuclear Operating Company / Georgia Power Company
Mr. S. E. Kuczynski (w/o enclosure)
Mr. J. A. Miller
Mr. D. G. Bost (w/o enclosure)
Mr. M. D. Meier
Mr. M. D. Rauckhorst (w/o enclosure)
Mr. J. T. Gasser (w/o enclosure)
Mr. D. H. Jones (w/o enclosure)
Ms. K. D. Fili (w/o enclosure)
Mr. D. R. Madison
Mr. T.W. Yelverton
Mr. B. H. Whitley
Mr. C. R. Pierce
Mr. D. L. Fulton
Mr. M. J. Yox
Mr. J. C. Harrelson
Mr. W. A. Sparkman
Mr. J. P. Redd
Document Services RTYPE: VND.LI.L00
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Nuclear Regulatory Commission
Mr. V. M. McCree (w/o enclosure)
Mr. M. Delligatti (w/o enclosure)
Mr. L. Burkhart (w/o enclosure)
Mr. C. Patel
Ms. D. L. McGovern
Mr. B. M. Bavol
Ms. R. Reyes
Ms. M. A. Sutton
Mr. M. E. Ernstes
Mr. G. Khouri
Mr. L. M. Cain
Mr. J. D. Fuller
Mr. C. B. Abbott
Ms. S. Temple

State of Georgia
Mr. J. H. Turner

Oglethorpe Power Corporation
Mr. M. W. Price
Ms. K. T. Haynes
Ms. A. Whaley

Municipal Electric Authority of Georgia
Mr. J. E. Fuller
Mr. S. M. Jackson

Dalton Utilities
Mr. D. Cope

CB&I
Mr. J. Simmons (w/o enclosure)
Ms. K. Stoner (w/o enclosure)
Mr. C. A. Castell

Westinghouse Electric Company, LLC
Mr. R. Easterling (w/o enclosure)
Mr. S. W. Gray (w/o enclosure)
Mr. J. W. Crenshaw (w/o enclosure)
Mr. C. D. Churchman (w/o enclosure)
Mr. L. Woodcock
Mr. P. A. Russ
Mr. G. F. Couture
Mr. M. Y. Shaqqo

Other
Mr. J. E. Hesler, 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
Mr. R. Grumbir, APOG
Mr. J. R. Bouknight, South Carolina Electric & Gas Company
Mr. D. Kersey, South Carolina Electric & Gas Company
Mr. B. Kitchen, Duke Energy
Mr. S. Franzone, Florida Power & Light

Southern Nuclear Operating Company

ND-15-0976

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Preliminary Amendment Request Regarding the Use of AWS D1.1-2000 Criteria for Structural Welds (PAR-15-009)

(This Enclosure consists of 4 pages, including this cover page)

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) 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 construction of components for VEGP 3 and 4 seismic Category I and II structures utilizing the criteria of American Welding Society (AWS) D1.1-2000, *Structural Welding Code-Steel*, in lieu of the AWS D1.1-1992 edition identified in AISC N690-1994, as identified in the Preliminary Amendment Request (PAR) provided below to be provided by the date shown below.

PAR Request Number:	Station Name:	Unit Number(s):	PAR Request Date:
SNC PAR-15-009	**VEGP**	☒ **3** ☒ **4**	**June 1, 2015**

1. NRC PAR Notification Requested Date (see Block 7 for basis): June 12, 2015

2. License Amendment Request References (as applicable):

☒ **LAR submittal date and SNC Correspondence Number:** May 26, 2015 / ND-15-0903 as supplemented by May 28, 2015 / ND-15-0968.

☐ **Expected LAR submittal date:** _____

3. Brief Description of Proposed Change:

This proposed change would revise the licensing basis, particularly the Combined Licenses' Updated Final Safety Analysis Report (UFSAR), description of the design of welding for structures in the nuclear island and in the seismic Category II portions of the turbine building and annex building.

The design change incorporates criteria of American Welding Society (AWS) D1.1-2000, *Structural Welding Code-Steel*, into the design of structures designed to the requirements of American Institute of Steel Construction (AISC) N690-1994, *Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities*, so that it may be used in lieu of the AWS D1.1-1992 version identified in AISC N690-1994. This use of AWS D1.1-2000 is necessary both for future welding and for installed welding to resolve an item noted by a Nuclear Regulatory Commission (NRC) inspector.

The proposed change simplifies the application of requirements from different codes and standards to the structural design through allowing the consistent use of the criteria for weld design in AWS D1.1-2000. The UFSAR cites AISC N690 and ACI 349 as applicable codes for these structural designs. Reference to AWS D1.1-2000 is added to these citations in the UFSAR as part of the proposed change so that it may be used in lieu of the AWS D1.1-1992 version identified in AISC N690-1994.

Reference to AWS D1.1-2000 is added where AISC N690 is identified as the applicable code for seismic Category I structures and components in UFSAR Subsections 3.6.2.3.4.2 (pipe whip restraints), 3A.1 (heating, ventilation and air conditioning (HVAC) ducts and their supports), 3F.1 (cable trays and their supports), and 3H.3.1 (auxiliary and shield buildings). AWS D1.1-2000 may also be used to replace and supplement specific provisions in AISC N690-1994 related to welding as identified in the proposed changes to UFSAR Subsections 3.8.3.2 and 3.8.4.2. AWS D1.1 includes provisions for welding to ASTM A992 steel. The need for this addition is driven by industry changes in structural steel shape availability, as ASTM A992 has generally replaced ASTM A36 for structural steel shapes.

The technical changes included in the AWS D1.1-2000 edition include criteria that consider load directionality on fillet welds and include an increase factor on structural fillet weld strength. The information on allowable stress for weld strength is included in AISC N690-1994 Section Q1.5.3 and Table Q1.5.3. This provision in AWS D1.1-2000 provides a supplemental set of requirements that are not included in AISC N690-1994 and AWS D1.1-1992. In addition to the changes to address load directionality, the technical changes incorporated into AWS D1.1-2000 either add more restrictive requirements or provide specific requirements for weld details not previously defined as follows: 1) The requirements on the range of weld angles in AWS D1.1-2000, Figure 3.11 – Detail C, over which requirements for skewed T joints apply is a more restrictive requirement than was included in AWS D1.1-1992; 2) The sizing criteria for complete joint penetration groove welds for welding of tubular members in AWS D1.1-2000, Section 2.3.4.1 provide specific requirements for weld details not previously defined; and 3) The weld metal to use for ASTM A992 structural shapes, identified in AWS D1.1-2000, Section 3.3 and Table 3.1 provide information not available in AISC N690-1994, Section Q1.4.4.

The portions of the turbine building and annex building adjacent to the auxiliary building are designed as seismic Category II structures to provide for structural integrity during seismic events. The seismic Category II portions of the turbine building and annex building are designed to the criteria of AISC N690 and ACI 349. Reference to AWS D1.1-2000 is also added to the list of codes for the design, qualification, fabrication, and inspection of the welding of seismic Category II structures in the UFSAR as part of the proposed change in UFSAR Subsections 3.3.2.3, 3.7.2, and 3.7.2.8.3. As part of this change, the application of the design requirements is changed to specifically include the seismic Category II portions of the turbine building by adding reference to the turbine building to the paragraph describing requirements for seismic Category II structures.

4. Reason for License Amendment Request:

These changes are driven primarily by a need to consider load directionality on fillet welds and include a corresponding increase factor on structural fillet weld strength. The information on allowable stress for weld strength is included in AISC N690-1994 Section Q1.5.3 and Table Q1.5.3. The provisions in AWS D1.1-2000 provide a supplemental set of requirements that are not included in AISC N690-1994 and AWS D1.1-1992.

The use of AWS D1.1-2000 was previously approved in the certified Design Control Document (Revision 19) Subsections 3.8.3.2 and 3.8.4.2. However, the identification of the code was not clear as to its intended application. The proposed revision clarifies the intended application and provides for consistent code usage for structural related welding activities.

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

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

6. **Identify Applicable Precedents:** The use of the provisions of AWS D1.1-2000 is included in the licensing basis for the structural welding provisions associated with construction in conformance with American Concrete Institute (ACI) 349-01, *Code Requirements for Nuclear Safety Related Structures,* since it is referenced in that code. See SNC VEGP Units 3 & 4 UFSAR Subsections 3.8.3.2 and 3.8.4.2.

7. Impact of Change on Installation and Testing Schedules:

SNC's requested date for approval of this license amendment as identified in the referenced LAR is July 29, 2015. This date is based primarily upon the time periods required for processing a requested license amendment. Structural welding activities dependent on the amendment are

currently placed in a “construction hold” status.

As such, this PAR requests a “no objection” finding related to this license amendment by the date identified in item 1 above (or sooner if reasonably achievable) to allow for appropriate notifications and release of related welding activities currently under the “construction hold” status to allow construction to continue.

Specifically, SNC requests a “no objection” finding for the activities addressed in the revised UFSAR descriptions, which include the following welding activities:

1. Welding associated with structural steel in the Unit 3 nuclear islands in preparation for setting of module CA01. This activity is currently on hold and ready to resume.
2. Welding associated with preparation and subsequent setting and connecting of Unit 3 module CA01. This activity is currently on hold and ready to resume.
3. Welding associated with completion of Unit 3 module CA20. This activity is currently on hold and ready to resume.
4. Welding associated with structural steel in the Unit 4 nuclear islands in preparation for setting of module CA04. This activity is currently on hold and ready to resume.
5. Welding associated with preparation and subsequent setting and connecting of Unit 4 module CA04. This activity is currently on hold and ready to resume.
6. Welding associated with preparation for setting of Unit 3 floors at elevation 82′-6″ in the auxiliary building. This activity is currently scheduled for mid-June.
7. Welding associated with preparation and subsequent setting and connecting of Unit 3 modules CB11 and CB12. This activity is currently scheduled to begin mid-June.
8. Welding associated with preparation and subsequent setting and connecting of Unit 4 modules CB65 and CB66. This activity is currently scheduled to begin mid-June.
9. Welding associated with setting and connecting of Unit 3 modules KB16 and R104. This activity is currently scheduled to begin mid-June.
10. Welding associated with Unit 3 and Unit 4 turbine building first bay structural steel, including embed plates. This activity is currently scheduled to begin mid- to late-July.
11. Welding associated with Unit 3 annex building structural steel, including embed plates. This activity is currently scheduled to begin mid- to late-July.

A “no objection” finding for the above welding activities would release the associated Unit 3 and Unit 4 construction holds related to activities currently scheduled prior to the requested LAR approval date.

8. **Impact of Change on ITAAC:** None

9. **Additional Information:** None