

September 2, 2016

Mr. Brian H. Whitley, Director  
Regulatory Affairs  
Southern Nuclear Operating Company, Inc.  
42 Inverness Center Parkway, B022  
Birmingham, AL 35242

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4 – ALTERNATIVE TO TITLE 10 OF THE CODE OF FEDERAL REGULATIONS, SECTION 50.55a REGARDING PRESERVICE INSPECTION REQUIREMENTS FOR CORE MAKEUP TANKS (CAC NO. RP9526)

Dear Mr. Whitley:

By letter dated March 18, 2016, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16078A231), Southern Nuclear Operating Company, Inc., (SNC or “the licensee”) submitted alternative request Vogtle Electric Generating Plant (VEGP) 3 and 4 PSI-ALT-04 to the regulations for VEGP Units 3 and 4 pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1). The licensee requested the alternative to the code of record, the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV Code), Section XI, 2007 Edition through 2008 Addenda, because it states that the B&PV Code does not describe the requirements for preservice inspection of the two Class 1 Core Makeup Tanks (CMTs), for each unit. The licensee requests that, as an alternative, the ASME B&PV Code, Section XI, 2007 through 2008 Addenda requirements stipulated for the pressurizer be used for the preservice inspection of the CMTs.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes that the licensee has demonstrated that the proposed alternative provides an acceptable level of quality and safety. Therefore, the NRC staff authorizes the proposed alternative of using the examination requirements stipulated for the pressurizer in ASME B&PV Code, Section XI, IWB-2500, for the preservice inspection of the CMTs, pursuant to 10 CFR 50.55a(z)(1) for VEGP.

If you have any questions, please contact Chandu Patel, Project Manager, at (301) 415-3025 or [Chandu.Patel@NRC.gov](mailto:Chandu.Patel@NRC.gov).

Sincerely,

***/RA/***

Jennifer Dixon-Herrity, Acting Chief  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos.: 52-025 and 52-026

Enclosure:  
Safety Evaluation

cc: See next page

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes that the licensee has demonstrated that the proposed alternative provides an acceptable level of quality and safety. Therefore, the NRC staff authorizes the proposed alternative of using the examination requirements stipulated for the pressurizer in ASME B&PV Code, Section XI, IWB-2500, for the preservice inspection of the CMTs, pursuant to 10 CFR 50.55a(z)(1) for VEGP.

If you have any questions, please contact Chandu Patel, Project Manager, at (301) 415-3025 or [Chandu.Patel@NRC.gov](mailto:Chandu.Patel@NRC.gov).

Sincerely,

**/RA/**

Jennifer Dixon-Herrity, Acting Chief  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos.: 52-025 and 52-026

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Safety Evaluation

cc: See next page

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NAME	RButler	CPatel	MMitchell	JDixon-Herrity
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Vogtle Units 3 & 4 Mailing List  
cc:

(Revised 07/13/2016)

Resident Manager  
Oglethorpe Power Corporation  
Alvin W. Vogtle Nuclear Plant  
7821 River Road  
Waynesboro, GA 30830

Resident Inspector  
Plant Vogtle 3&4  
8805 River Road  
Waynesboro, GA 30830

Office of the Attorney General  
40 Capitol Square, SW  
Atlanta, GA 30334

Mr. Barty Simonton  
Environmental Radiation Program Manager  
Environmental Protection Division  
Georgia Dept. of Natural Resources  
4224 International Pkwy, Suite 120  
Atlanta, GA 30354-3906

Southern Nuclear Op. Co.  
Document Control Coordinator  
42 Inverness Center parkway  
Attn: B236  
Birmingham, AL 35242

Gene Stilp  
1550 Fishing Creek Valley Road  
Harrisburg, PA 17112

Anne F. Appleby  
Oglethorpe Power Corporation  
2100 East Exchange Place  
Tucker, GA 30084

Mr. Robert E. Sweeney  
IBEX ESI  
4641 Montgomery Avenue  
Suite 350  
Bethesda, MD 20814

County Commissioner  
Office of the County Commissioner  
Burke County Commission  
Waynesboro, GA 30830

George B. Taylor, Jr.  
2100 East Exchange Pl  
Atlanta, GA 30084-5336

Mr. Wayne Guilfoyle  
Commissioner  
District 8  
Augusta-Richmond County Commission  
4940 Windsor Spring Rd  
Hephzibah, GA 30815

Brian H. Whitley  
42 Inverness Center Parkway  
BIN B237  
Birmingham, AL 35242

Gwendolyn Jackson  
Burke County Library  
130 Highway 24 South  
Waynesboro, GA 30830

Mr. Reece McAlister  
Executive Secretary  
Georgia Public Service Commission  
Atlanta, GA 30334

## Vogtle Units 3 & 4 Mailing List

### Email

agaughtm@southernco.com (Amy Aughtman)  
annacom@westinghouse.com (Michael J. Annacone)  
awc@nei.org (Anne W. Cottingham)  
Bartley.Higgins@hq.doe.gov (Bartley Higgins)  
becky@georgiawand.org (Becky Rafter)  
bhwhitle@southernco.com (Brian Whitley)  
Bill.Jacobs@gdsassociates.com (Bill Jacobs)  
bjadams@southernco.com (Brad Adams)  
burrouno@westinghouse.com (Nicholle Burroughs)  
bwwaites@southernco.com (Brandon Waites)  
castelca@westinghouse.com (Curtis Castell)  
comerj@westinghouse.com (James Comer)  
couturgf@westinghouse.com (Gerald Couture)  
crenshjw@westinghouse.com (John Crenshaw)  
crpierce@southernco.com (C.R. Pierce)  
dahjones@southernco.com (David Jones)  
david.hinds@ge.com (David Hinds)  
david.lewis@pillsburylaw.com (David Lewis)  
dgbost@southernco.com (Danny Bost)  
dlfulton@southernco.com (Dale Fulton)  
drculver@southernco.com (Randy Culver)  
durhamdc@westinghouse.com (David Durham)  
ed.burns@earthlink.net (Ed Burns)  
edavis@pegasusgroup.us (Ed David)  
erg-xl@cox.net (Eddie R. Grant)  
fdhundle@southernco.com (Forrest Hundley)  
G2NDRMDC@southernco.com (SNC Document Control)  
graysw@westinghouse.com (Scott W. Gray)  
james1.beard@ge.com (James Beard)  
jannina.blanco@pillsburylaw.com (Jannina Blanco)  
jantol1dj@westinghouse.com (David Jantosik)  
jenmorri@southernco.com (Jennifer Buettner)  
JHaswell@southernco.com (JHaswell)  
jim@ncwarn.org (Jim Warren)  
John.Bozga@nrc.gov (John Bozga)  
Joseph\_Hegner@dom.com (Joseph Hegner)  
jpredd@southernco.com (Jason R. Redd)  
jranalli@meagpower.org (Jerry Ranalli)  
jtgasser@southernco.com (Jeff Gasser)  
karen.patterson@ttnus.com (Karen Patterson)  
karlg@att.net (Karl Gross)  
kdfili@southernco.com (Karen Fili)  
kim.haynes@opc.com (Kim Haynes)  
kmseiber@southernco.com (Kristin Seibert)

## Vogle Units 3 & 4 Mailing List

kmstacy@southernco.com (Kara Stacy)  
KSutton@morganlewis.com (Kathryn M. Sutton)  
kwaugh@impact-net.org (Kenneth O. Waugh)  
lchandler@morganlewis.com (Lawrence J. Chandler)  
markus.popa@hq.doe.gov (Markus Popa)  
mcintyba@westinghouse.com (Brian McIntyre)  
mdmeier@southernco.com (Mike Meier)  
media@nei.org (Scott Peterson)  
Melissa.Smith@Hq.Doe.Gov (Melissa Smith)  
Michael.Kuca@hq.doe.gov (Michael Kuca)  
mike.price@opc.com (M.W. Price)  
mlgraves@southernco.com (Michelle Graves)  
MSF@nei.org (Marvin Fertel)  
myox@southernco.com (Mike Yox)  
nirsnet@nirs.org (Michael Mariotte)  
Nuclaw@mindspring.com (Robert Temple)  
patriciaL.campbell@ge.com (Patricia L. Campbell)  
Paul@beyondnuclear.org (Paul Gunter)  
pbessette@morganlewis.com (Paul Bessette)  
r.joshi15@comcast.net (Ravi Joshi)  
randall@nexusamllc.com (Randall Li)  
rjarrett@southernco.com (Robyn Jarrett)  
RJB@NEI.org (Russell Bell)  
Ronald.Jones@scana.com (Ronald Jones)  
russpa@westinghouse.com (Paul Russ)  
rwink@ameren.com (Roger Wink)  
sabinski@suddenlink.net (Steve A. Bennett)  
sara@cleanenergy.org (Sara Barczak)  
sblanton@balch.com (Stanford Blanton)  
sfrantz@morganlewis.com (Stephen P. Frantz)  
Shiva.Granmayeh@hq.doe.gov (Shiva Granmayeh)  
sjackson@meagpower.org (Steven Jackson)  
skauffman@mpr.com (Storm Kauffman)  
sroetger@psc.state.ga.us (Steve Roetger)  
stephan.moen@ge.com (Stephan Moen)  
taterrel@southernco.com (Todd Terrell)  
tom.miller@hq.doe.gov (Tom Miller)  
TomClements329@cs.com (Tom Clements)  
Vanessa.quinn@dhs.gov (Vanessa Quinn)  
Wanda.K.Marshall@dom.com (Wanda K. Marshall)  
wasparkm@southernco.com (Wesley A. Sparkman)  
wayne.marquino@ge.com (Wayne Marquino)  
weave1dw@westinghouse.com (Doug Weaver)  
x2gabeck@southernco.com (Gary Becker)

SAFETY EVALUATION BY THE OFFICE OF NEW REACTORS  
REGARDING PRESERVICE INSPECTION REQUIREMENTS FOR CORE MAKEUP TANKS  
SOUTHERN NUCLEAR OPERATING COMPANY, INC  
GEORGIA POWER COMPANY  
OGLETHORPE POWER COMPANY  
MEAG POWER SPVM, LLC  
MEAG POWER SPVJ, LLC  
MEAG POWER SPVP, LLC  
CITY OF DALTON, GEORGIA  
VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4  
DOCKET NOS. 52-025 AND 52-026

## **1.0 INTRODUCTION**

By letter dated March 18, 2016, (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML16078A231) Southern Nuclear Operating Company, Inc., (SNC or “the licensee”) submitted alternative request Vogtle Electric Generating Plant (VEGP) 3 and 4 PSI-ALT-04 to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. In the letter, the licensee requested authorization to use an alternative, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z), to the requirements of the 2007 Edition, including the 2008 Addenda, of American Society of Mechanical Engineers (ASME) Section XI, IWB-2500, for Vogtle Electric Generating Plant, Units 3 and 4 (VEGP 3&4). Specifically, the licensee’s request would allow the use of ASME Section XI examination requirements stipulated for the pressurizer for preservice inspection of the AP1000 Core Makeup Tanks (CMTs).

## **2.0 REGULATORY EVALUATION**

The regulations in 10 CFR 50.55a require that ASME Code Class 1 components (including their supports) meet the preservice examination requirements set forth in either the edition and addenda of ASME Section XI applied to the construction of the component or in subsequent editions and addenda that have been incorporated by reference in 10 CFR 50.55a. Per 10 CFR 50.55a(z), alternatives to the requirements of 10 CFR 50.55a may be used when authorized by the Commission. In proposing alternatives, the licensee must demonstrate that: (1) the proposed alternative would provide an acceptable level of quality and safety; or (2) compliance

would result in hardship or unusual difficulty without a compensating increase in quality and safety.

In its letter dated May 3, 2016, the licensee determined that the 2007 Edition, including the 2008 Addenda, of ASME Section XI does not provide examination requirements for the AP1000 CMTs. To address this issue, pursuant to 10 CFR 50.55a(z)(1), the licensee proposes to use the examination requirements stipulated for the pressurizer in the 2007 Edition, including the 2008 Addenda, of ASME Section XI, Table IWB-2500-1, for preservice inspection of the CMTs.

### **3.0 EVALUATION OF THE ALTERNATIVE**

#### **3.1 Items for Which an Alternative is Requested**

The components affected by this request are the CMTs. The Westinghouse Electric Company's (Westinghouse) AP1000 design includes two CMTs per unit. The CMTs are vertical, cylindrical tanks with hemispherical upper and lower heads made of carbon steel, clad with stainless steel. They are located inside containment and their primary function is to provide makeup and boration to the reactor coolant system during events not involving loss of coolant when the normal makeup system is unavailable or insufficient. As indicated in the VEGP 3&4, Updated Final Safety Analysis Report (UFSAR) (ADAMS Accession No. ML15194A443), Tier 2, Table 3.2-3, the CMTs are classified as Safety Class A components and are constructed to ASME Section III, Class 1 requirements.

#### **3.2 Applicable Code Requirement**

The regulations in 10 CFR 50.55a require that ASME Code Class 1 components (including their supports) meet the preservice examination requirements set forth in either the edition and addenda of ASME Section XI applied to the construction of the component or in subsequent editions and addenda that have been incorporated by reference in 10 CFR 50.55a. The inspection requirements for Class 1 components in the 2007 edition, including the 2008 addenda, of the ASME Code are provided in ASME Section XI, Subsection IWB. ASME Section XI, Table IWB-2500-1 provides the required methods of examination for the components and parts of the ASME Class 1 pressure retaining boundary. To provide a baseline for subsequent inservice examinations, ASME Section XI, IWB-2200 requires that all examinations required by ASME Section XI, Table IWB-2500-1 (with the exception of Examination Category B-P, and the VT-3 examination of the internal surfaces of Categories B-L-2 and B-M-2) be performed prior to initial plant startup.

#### **3.3 Proposed Alternative**

The licensee proposes to use the examination requirements stipulated for the pressurizer in the 2007 Edition, including the 2008 Addenda, of ASME Section XI, IWB-2500, for preservice inspection of the CMTs prior to initial plant startup.

#### **3.4 Basis for the Alternative**

The licensee stated that the CMTs are new ASME Class 1 components specific to the Westinghouse AP1000 design and have not been previously addressed by the ASME Code. Consequently, the 2007 Edition, including the 2008 Addenda, of ASME Section XI,



Table IWB-2500-1, does not describe the requirements for the examination of the CMTs. As such, the licensee proposed to use the examination requirements stipulated for the pressurizer for preservice inspection of the CMTs.

In its letter, the licensee stated that both the pressurizer and CMTs are Class 1 vessels designed, fabricated and examined in accordance with ASME Section III, Subsection NB requirements. In addition, both the pressurizer and CMTs are operated at reactor coolant system nominal operating pressure and are fabricated of similar materials. The licensee also stated that the application of the pressurizer preservice inspection requirements will assure the pressure retaining integrity of the CMTs is maintained in accordance with ASME Section XI requirements and is consistent with the requirements of 10 CFR 50.55a. On this basis, the licensee concluded that the proposed examinations for the CMTs would provide an acceptable level of quality and safety.

To describe how the ASME Section XI requirements for the pressurizer would be applied to the CMTs, the licensee provided Table 1 (in the application), which describes the proposed examinations for the CMTs. The licensee also provided Figures 1 and 2 (in the application) to describe the locations of welds, bolting, and other items that would be subject to inspection using the ASME Section XI requirements stipulated for the pressurizer.

### **3.5 Staff Evaluation**

10 CFR 50.55a(g)(3) requires that ASME Code Class 1 components (including supports) must meet the preservice examinations set forth in the Editions and Addenda of ASME Section III or XI. ASME Section XI, Subsection IWB provides requirements for the preservice and inservice inspection of ASME Code components. As indicated by the licensee, the CMTs are classified as ASME Code Class 1 components. Therefore, the requirements of ASME Section XI, Subsection IWB must be applied. However, the examination requirements of ASME Section XI, Table IWB-2500-1 are itemized by component and do not include the CMTs. In addition, ASME Section XI, Subsection IWB does not provide any requirements for components not identified in Table IWB-2500-1. Therefore, the staff believes that it is appropriate for the licensee to pursue alternative examination requirements in order to ensure that the pressure retaining integrity of the CMTs is maintained throughout the operating life of the plant.

In VEGP 3&4 PSI-ALT-04, the licensee proposed to use the examination requirements stipulated for the pressurizer for preservice examination of the CMTs. The staff reviewed VEGP 3&4, UFSAR, Tier 2, Section 5.2.3, "Reactor Coolant Pressure Boundary Materials," and confirmed that the materials of construction for the pressurizer and CMTs are similar. Both components are fabricated using low alloy steel and clad with austenitic stainless steel. The staff also reviewed VEGP 3&4, UFSAR, Tier 2, Section 5.4, "Component and Subsystem Design," and confirmed that the pressurizer and CMTs are designed to similar operating pressures and temperatures. On this basis, the staff believes that it is appropriate to use the examination requirements stipulated for the pressurizer for preservice examination of the CMTs.

Lastly, the staff reviewed the information provided in VEGP 3&4-PSI-ALT-04 to determine whether the licensee had appropriately applied the examination requirements stipulated for the pressurizer to the proposed preservice inspections to the CMTs. The ASME Section XI, Subsection IWB examination categories that are applicable to the pressurizer are Categories B-B, B-D, B-F, B-G-1, B-G-2, B-K, and B-P. The staff reviewed VEGP 3&4-PSI-ALT-04, Figure 1

and Figure 2 to determine whether all of the aforementioned examination categories are applicable to the CMTs. The staff also reviewed VEGP 3&4-PSI-ALT-04, Table 1 to verify that the proposed examinations for the CMTs were in accordance with the requirements stipulated for the pressurizer in ASME Section XI, IWB-2500-1. Based on the review described above, the staff determined that the following examination categories stipulated for the pressurizer in ASME Section XI are applicable to the VEGP 3&4 CMTs: Categories B-B, B-D, B-F, B-G-2, B-K, and B-P. The staff determined that Examination Category B-G-1 is not applicable to the CMTs because they do not have pressure retaining bolting greater than 2 inches in diameter. The staff also determined that VEGP 3&4-PSI-ALT-04, Table 1 identified the appropriate examination category, item number, and examination method for each weld, and welded attachment, bolt, and nut contained in the VEGP 3&4 CMTs. On this basis, the staff finds that the licensee has appropriately applied the examination requirements stipulated for the pressurizer in ASME Section XI to the proposed preservice inspections to the CMTs.

Based on the review described above, the staff finds that the licensee has demonstrated that using the examination requirements stipulated for the pressurizer in ASME Section XI, IWB-2500, for the preservice inspection of the VEGP 3&4 CMTs provides an acceptable level of quality and safety. This finding is based on the fact that the pressurizer and CMTs are both constructed to ASME Code Class 1 rules, fabricated using similar materials, and designed to similar operating pressure and temperature. The finding is also based on the fact that the licensee has appropriately described, in detail, how the examination requirements stipulated for the pressurizer will be applied to the preservice inspection of the CMTs. This description provides a reasonable assurance that the pressure retaining integrity of the CMTs will be maintained.

#### **4.0 CONCLUSION**

The staff concludes that the proposed alternative to the requirements of the 2007 Edition, including the 2008 Addenda, of ASME Section XI, IWB-2500 is authorized for VEGP 3&4, on the basis that the proposed alternative provides an acceptable level of quality and safety. All other requirements of ASME Section XI and 10 CFR 50.55a, for which an alternative has not been specifically requested and authorized, remain applicable.