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ND-17-1417  
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10 CFR 52.98

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  
Request for License Amendment Regarding:  
Increase in MSIV Compartment Pressure (LAR-17-028)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests an amendment to the combined licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (License Numbers NPF-91 and NPF-92, respectively). The requested amendment proposes to depart from approved AP1000 Design Control Document (DCD) Tier 2 information (text) and involved Tier 2\* information (as incorporated into the Updated Final Safety Analysis Report (UFSAR) as plant-specific DCD information).

This amendment request proposes increasing the design pressure of the main steam (MS) isolation valve (MSIV) compartments from 6.0 psi to 6.5 psi and proposes other changes to the licensing basis regarding descriptions of the MSIV compartments. This submittal requests approval of the license amendment necessary to implement these changes.

Enclosure 1 provides the description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration Determination) and environmental considerations for the proposed changes.

Enclosure 2 identifies the requested changes and provides markups depicting the requested changes to the VEGP Units 3 and 4 licensing basis documents.

This letter contains no regulatory commitments. This letter has been reviewed and determined not to contain security related information.

SNC requests NRC staff approval of the license amendment by June 1, 2018 to support turnover of components located in the MSIV compartment for testing. Delayed approval of this license amendment could result in a delay in turnover of components located in the MSIV compartment for testing and subsequent dependent construction activities. SNC expects to implement this proposed amendment within 30 days of approval of the requested changes.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia by transmitting a copy of this letter and its enclosures to the designated State Official.

Should you have any questions, please contact Adam Quarles at (205) 992-7031.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 18th of August 2017.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "B. H. Whitley", is written over a horizontal line.

Brian H. Whitley  
Director, Regulatory Affairs  
Southern Nuclear Operating Company

- Enclosures:
- 1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment Regarding Increase in MSIV Compartment Pressure (LAR-17-028)
  - 2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to Licensing Basis Documents (LAR-17-028)

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**Southern Nuclear Operating Company**

**ND-17-1417**

**Enclosure 1**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Request for License Amendment Regarding**

**Increase in MSIV Compartment Pressure**

**(LAR-17-028)**

(This Enclosure consists of 14 pages, including this cover page)

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Enclosure 1

Request for License Amendment Regarding Increase in MSIV Compartment Pressure  
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Enclosure 1

Request for License Amendment Regarding Increase in MSIV Compartment Pressure  
(LAR-17-028)

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) hereby requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

## **1. SUMMARY DESCRIPTION**

The proposed change consists of increasing the design pressure of the main steam (MS) isolation valve (MSIV) compartments from 6.0 psi to 6.5 psi. These areas include MSIV Compartment B (Rooms 12404 and 12504) and MSIV Compartment A (Rooms 12406 and 12506), located in the auxiliary building. The MSIV compartments are located on the north side of the auxiliary building, and house the main feedwater, startup feedwater, and main steam lines as they pass to/from primary containment through the shield building, and to/from the turbine building. The segments of the main feedwater, startup feedwater, and main steam lines that pass through the MSIV compartments are qualified for break exclusion based on compliance with the criteria contained in Updated Final Safety Analysis Report (UFSAR) Subsection 3.6.2.1.1.4. However, non-mechanistic, longitudinal cracks (with crack flow areas of 1 square foot) are postulated in the main steam and main feedwater piping for evaluation of spray wetting, flooding, and pressurization effects on the MSIV compartments and essential components.

The current design pressure of the MSIV compartments is 6.0 psi. The proposed change increases the design pressure to 6.5 psi. The design pressure increase is primarily the result of a more limiting feedwater line mass and energy release based upon the main feedwater system piping layout design and feedwater control valve characterization. In conjunction with the changes to the MSIV compartment pressurization analysis, the calculated pressure for the limiting event (main feedwater break in MSIV Compartment B) was determined to be 5.97 psi, just under the MSIV compartments design pressure of 6.0 psi. The design pressure increase to 6.5 psi provides additional margin for the MSIV Compartments A and B design. This additional margin supports initial testing and long term operation of plant. The MSIV compartment structures, systems and components (SSCs) remain structurally and environmentally qualified to withstand the effects of the 0.5 psi increase in design pressure.

The requested amendment changes the UFSAR in the form of departures from the incorporated plant-specific Design Control Document (PS-DCD) Tier 2 information as identified in Section 2, "Detailed Description," below. Regulations in 10 CFR Part 52, Appendix D, Section VIII.B.5.a require prior NRC approval for Tier 2 departures that involve changes to Tier 1, Tier 2\* information or the Technical Specifications. The proposed changes to Wall 11 (i.e., the north wall of rooms 12404, 12504, 12406, and 12506) affect Tier 2\* information contained in UFSAR Subsections 3H.3.3, 3H.5.1 and 3H.5.1.3, thus requiring prior NRC approval.

## **2. DETAILED DESCRIPTION**

The nuclear island structures consist of the containment building that includes the containment vessel and containment internal structures, the shield building, and the auxiliary building. The primary functions of the auxiliary building structure include providing support, protection, and separation for the seismic Category I mechanical and electrical equipment located in the nuclear

island outside of containment building. The auxiliary building provides protection for safety-related equipment contained therein from the consequences of postulated internal and external events. The auxiliary building also provides shielding from the radioactive equipment and piping located within the building.

The MSIV compartments house the main feedwater, startup feedwater, and main steam lines, as they pass to/from primary containment through the shield building, to/from the turbine building, the MSIVs, the MS safety valves (MSSVs), the power-operated relief valves (PORVs), the PORV block valves, and other essential components. Essential components are those components credited in providing the capability to safely shut down the reactor in the event of a pipe rupture accident. While the main steam, main feedwater, and startup feedwater lines are qualified for break exclusion based on compliance with the criteria contained in UFSAR Subsection 3.6.2.1.1.4, non-mechanistic, longitudinal cracks (with crack flow areas of 1 square foot) are postulated in the main steam and main feedwater piping for evaluation of spray wetting, flooding, and pressurization effects on the MSIV compartments and essential components.

As identified in UFSAR Figures 1.2-7, 1.2-8, 1.2-10, and 1.2-11, MSIV Compartment B is adjacent to the following areas:

- Room 12304 (Division B I&C Penetration Room) located below at elevation 100'-0"
- Room 12405 (Lower VBS B&D Equipment Room) located at elevation 117'-6"
- Room 12401 (Main Control Room) located at elevation 117'-6"
- Room 12412 (Electrical Penetration Room Division A) located at elevation 117'-6"
- The shield building to the south at both elevations
- Room 12501 (VBS MCR/A&C Equipment Room) located at elevation 135'-3"
- Room 12505 (Upper VBS B&D Equipment Room) located at elevation 135'-3"
- Area 12691 (North Auxiliary Building Roof) located above the compartment
- Corridor 12300 located at elevation 110'-0"

MSIV Compartment A is adjacent to the following areas:

- Room 12306 (Valve/Piping Penetration Room) located below at elevation 100'-0"
- Room 12405 (Lower VBS B&D Equipment Room) located at elevation 135'-3"
- Room 12505 (Upper VBS B&D Equipment Room) located at elevation 135'-3"
- Stairwell S02 located at elevation 107'-2"
- Area 12691 (North Auxiliary Building Roof) located above the compartment
- The atmosphere to the west at both elevations
- The shield building to the south at both elevations

The MSIV compartments are provided with pressure relief devices, including steam relief vents, doors, and other features designed and specified to open under established differential pressures. The purpose of the MSIV compartment pressure relief devices is to relieve pressure from postulated pipe breaks in the MSIV compartments into the turbine building (and for the lower MSIV Compartment B, to the turbine building through the piping/valve penetration room below), through drains and vents to the turbine building and through the roof to the atmosphere in an MSIV compartment. The structures forming the MSIV compartment boundaries are

designed and analyzed to withstand MSIV compartment pressurization, and the essential equipment contained therein remains qualified for the increase in pressure. Thus, the MSIV steam relief devices are collectively designed and sized, and the MSIV compartments are analyzed, such that for the worst-case pipe break postulated, the MSIV compartment pressures remain less than or equal to the design limit.

The current licensing basis identifies that the design pressure of the MSIV compartments is 6.0 psi. The proposed change increases the design pressure to 6.5 psi. The design pressure increase is primarily the result of more limiting feedwater line mass and energy releases based upon main feedwater system piping layout design and feedwater control valve characterization. Other structural items contributing to the need to increase the MSIV compartment pressure limit to 6.5 psi include: structural support steel layout, final grating types of floors/platforms, drains/vents louver characteristics, and revised differential pressure setpoints of blowout panels and doors. Resolutions of these structural items resulted in more limiting mass and energy releases, and a more limiting MSIV compartment model for the postulated 1 square foot break in the MSIV compartments. In conjunction with the closure of structural items associated with the MSIV compartment pressurization analysis, the calculated pressure for the limiting event (main feedwater break MSIV Compartment B), was determined to be 5.97 psi, just under the MSIV compartments design pressure of 6.0 psi. The MSIV design pressure increase to 6.5 psi provides additional margin for the MSIV Compartments A and B design. The MSIV compartment structures, systems and components (SSCs) remain structurally and environmentally qualified to withstand the effects of the 0.5 psi increase in design pressure.

Licensing Basis Change Descriptions:

**Proposed Licensing Basis Changes**

<b>Text, Table, or Figure</b>	<b>Description of the Proposed Change</b>
UFSAR Subsection 3.6.1.2.2	Specify that the Main Control Room is not affected by depressurization of MSIV Compartment B, describe the MSIV Compartments A & B pressure relief flow paths, and note that the pressure relief will no longer be solely through the roof vents and louvers.
UFSAR Subsection 3.8.4.3.1.4	Specify that the MSIV compartments are designed for a pressure of 6.5 psi and that the steam generator blowdown valve compartment remains designed for a pressure of 6 psi.
UFSAR Subsection 3D.5.5.2	Identify an exception to the statement that the maximum pressure for any event outside containment is 6 psi, and that the MSIV compartments are designed for a pressure of 6.5 psi.
UFSAR Subsection 3H.3.3	Specify that the MSIV compartments are

UFSAR Subsection 3H.5.1 designed for a pressurization load of 6.5 psi and that the steam generator blowdown valve compartment remain designed for a pressurization load of 6 psi.

UFSAR Subsection 3H.5.1.3 Specify that the shear walls of the main steam isolation valves (MSIV) rooms are designed for 6.5 psi pressure load.

Specify that the column line L wall from elevation 117'-6" to 135'-3" is designed to withstand a pressure of 6.5 psi.

### 3. TECHNICAL EVALUATION

As discussed above, the main feedwater, startup feedwater, and main steam lines pass through the lower MSIV compartments. The limiting postulated break for determination of post-accident MSIV compartment pressures is the main feedwater line break in MSIV Compartment B, which results in the greatest mass and energy release from the non-mechanistic 1 square foot break postulated in these lines.

The pressure relief flowpaths provided for the MSIV compartments are described in Table 1 below.

<b>Table 1</b>				
<b>MSIV Compartment Pressure Relief Flowpaths</b>				
<b>Compartment</b>	<b>Room</b>	<b>Vent</b>	<b>Elevation</b>	<b>Vent Path</b>
MSIV Compartment B	12404	Drain/vent	117'-6"	Turbine building first bay
	12504	Door	135'-3"	Turbine building first bay
		Roof Vent	Roof	Atmosphere
MSIV Compartment A	12406	Drain/vent	117'-6"	Turbine building first bay
		Floor penetrations	117'-6"	To Room 12306, through Room
	12506	Door	135'-3"	Turbine building first bay
		Roof Vent	Roof	Atmosphere

As identified in Table 1, the pressure relief pathways for both MSIV compartments are the same, with the exception that MSIV Compartment A has an additional pressure relief pathway to the valve/piping penetration room (Room 12306) located directly under the lower MSIV Compartment A (Room 12406). The lower MSIV Compartment A communicates with the

valve/piping penetration room through three large penetrations in the lower MSIV Compartment A floor. Thus, the limiting case for MSIV compartment pressurization is the main feedwater line break postulated in MSIV Compartment B resulting in a pressure of 5.97 psi. The design pressure increase to 6.5 psi provides additional margin for the MSIV Compartments A and B design.

The auxiliary building is designed in accordance with the codes and standards identified in UFSAR Subsection 3.8.4.2, including American Concrete Institute (ACI) 349-01 for concrete structures, and American Institute of Steel Construction (AISC) N690-1994 for steel structures, including the supplemental requirements described in UFSAR Subsection 3.8.4.4.1, "Seismic Category I Structures," and UFSAR Subsection 3.8.4.5, "Structural Criteria," and the guidance contained in NRC Regulatory Guides 1.115, 1.142, and 1.143 (as discussed in UFSAR Appendix 1A, "Conformance with Regulatory Guides").

The proposed 0.5 psi increase in MSIV compartment design pressure on wall and floor reinforcement for the structures that make up the boundaries of the MSIV compartments was reanalyzed in the reinforcement analysis. The wall and floor reinforcements selected in the reinforcement analysis design were capable of withstanding higher design pressure effects than the analysis results initially indicated. The auxiliary building walls/floors/roof that make up the MSIV compartment boundaries were re-analyzed considering the 0.5 psi pressure increase. The maximum increase in the required area of reinforcement due to this additional pressure was calculated as 0.091 in<sup>2</sup>/ft. The limiting increases in required area of reinforcement for the floors/roof affected by the pressure increase occurred in the floor of the lower MSIV Compartment A at elevation 117'-6". The limiting increases in required area of reinforcement for the walls affected by the pressure increase occurred in Wall Q, which forms the west wall of MSIV Compartment A and forms the west exterior of the auxiliary building at that location. Acceptable code margin exists in the reinforcement analysis for the MSIV compartments and adjacent rooms with the currently available reinforcement such that no physical changes to the walls/floors/roof are warranted.

Therefore, even though the revised reinforcement analysis results for these compartments and adjacent rooms did increase the calculated required area of reinforcement as a result of 0.5 psi MSIV compartment pressure increase, the initial reinforcement analysis had acceptable code margin to preclude making any physical reinforcement modifications. The changes discussed in this package have no impact to Amendment No. 51 approved by the NRC by letter dated August 3, 2016 [ML16201A298].

The proposed change in MSIV compartment pressure does not impact compliance with: the affected auxiliary building structural UFSAR Subsections 3.7.1, 3.7.2, 3.8.4.4.1, and 3.8.4.5; the requirements contained in ACI 349-01 for concrete structures and AISC N690-1994 for steel structures; and the guidance contained in NRC Regulatory Guides 1.115, 1.142, and 1.143, as discussed in UFSAR Appendix 1A. The proposed changes do not impact the detailed descriptions of the auxiliary building provided in UFSAR Subsections 3.8.4.1.2 and 3H.2.1.

The essential components contained within the MSIV compartments and the valve/piping penetration room remain qualified for the increase in MSIV compartment design pressure. The drain/vents, roof vents, and doors remain qualified to perform their functions to open under the post- accident conditions resulting in the increase in pressure within the MSIV compartments. Essential piping system valves, electrical power, and control and instrumentation remain qualified for the increase in design pressure.

A review of the main feedwater, startup feedwater, and main steam piping analysis within the MSIV compartments determined that the increase in MSIV compartment design pressure from 6.0 psi to 6.5 psi does not impact the results of these analyses as the structure and components therein remain structurally and environmentally qualified for the increased compartment pressure.

There are no heating, ventilating, and air conditioning (HVAC) penetrations that pass through the MSIV compartment envelopes. The mechanical and electrical penetrations have been evaluated and determined to be qualified for the increase in design pressure to 6.5 psi.

The increase in MSIV compartment design pressure does not result in any significant change in effluent released for the main steam line break accident. The limiting main steam line break accident was conservatively analyzed in accordance with the parameters described in UFSAR Section 15.1, "Increase in Heat Removal from the Primary System." The proposed change does not affect the site dispersion factor (X/Q) values, and does not affect the radiological source terms used in the steam system piping failure analysis inasmuch as this accident is not the limiting event for site dispersion factors.

Some of the MSIV compartment pressure relief pathways vent to the turbine building first bay. However, the increase in MSIV compartment design pressure does not impact the design of the turbine building first bay structure. The post-accident pressures in the turbine building first bay resulting from breaks postulated in the MSIV compartments remain well below the 6 psi design pressure for the first bay, which is based on postulated main steam and feedwater line breaks occurring in the first bay.

The proposed changes do not require a change to procedures or method of control that adversely affects the performance of the MSIV compartment component design functions as described in the UFSAR. The physical design and operation of the MSIV compartment components, including inspections, testing, and maintenance requirements, as described in the UFSAR have not changed, and there are no changes to procedures or method of control required to address the proposed changes to the licensing basis. The proposed changes maintain the MSIV compartment component's design functions.

An impact review determined that these proposed changes do not affect or require any change to the AP1000 PRA presented in UFSAR Chapter 19, including the Fire PRA, results and insights (e.g., core damage frequency and large release frequency). The physical design and operation of the MSIV compartment components described in the UFSAR has not changed, including inspections, testing, and maintenance requirements, and there are no changes to the AP1000 PRA. There are no new postulated failures of the MSIV compartment components that would require a PRA model. Therefore, there are no changes required to initiating event frequencies and system logic models of the PRA, including the Seismic Margins Analysis. The existing PRA risk significance investment protection determination for the MSIV compartment components is not affected.

There are no radiation zone changes or radiological access control changes required because of these proposed changes. The physical design and operation of the MSIV compartment components, including inspections, testing, and maintenance requirements, as described in the UFSAR have not changed. There are no changes required to the radiation protection design features described in UFSAR Section 12.3.

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There are no fire area changes required because of these proposed changes. The physical design and operation of the MSIV compartment components described in the UFSAR have not changed, including inspections, testing, and maintenance requirements, and there are no changes required to the fire protection analysis described in UFSAR Appendix 9A.

There is no change to the risk-significant designation of SSCs within the Design Reliability Assurance Program as described in UFSAR Table 17.4-1, as there are no physical modifications being made to the MSIV compartment components that would change the risk-significance of these components.

The proposed changes do not affect the containment, control, channeling, monitoring, processing, or releasing of radioactive and non-radioactive materials. No effluent release path is affected. The types and quantities of expected effluents are not changed. Therefore, neither radioactive nor non-radioactive material effluents are affected.

The proposed changes do not affect plant radiation zones, controls under 10 CFR 20, and expected amounts and types of radioactive materials, as the physical design and operation of the MSIV compartment components, including inspections, testing, and maintenance requirements, as described in the UFSAR are not changed. Therefore, individual and cumulative radiation exposures do not change.

The proposed changes do not affect the results of the aircraft impact assessment described in UFSAR subsection 19F.4

### Summary

The proposed change consists of increasing the design pressure of the MSIV compartments from 6.0 psi to 6.5 psi. These areas include the MSIV Compartment B (Rooms 12404 and 12504), and the MSIV Compartment A (Rooms 12406 and 12506) located in the auxiliary building.

The proposed changes affect the COL concerning Tier 2\* UFSAR pressure loading design criteria for the MSIV compartment rooms. The proposed changes revise UFSAR Subsections 3.6.1.2.2, 3.8.4.3.1.4, 3D.5.5.2, 3H.3.3, 3H.5.1 and 3H.5.1.3 regarding pressure loading in the MSIV compartment rooms following a postulated high-energy line break. The proposed changes maintain the design functions of the MSIV compartment components and structure to withstand a postulated main steam and feedwater line break and be available to close during transient and accident conditions. Therefore, the previously evaluated and approved MSIV compartment component safety-related and nonsafety-related design functions described in the UFSAR, and the results and consequences of the postulated high-energy line break transient analyses are not adversely affected by these proposed changes to Tier 2\* UFSAR Subsections 3H.3.3, 3H.5.1 and 3H.5.1.3 regarding pressure loading in the MSIV compartment rooms.

The proposed changes do not adversely affect any safety-related equipment or function, design function, radioactive material barrier, or safety analysis

#### **4. REGULATORY EVALUATION**

##### **4.1 Applicable Regulatory Requirements/Criteria**

10 CFR Part 52, Appendix D, Section VIII, paragraphs B.6 and B.5.a, require prior Nuclear Regulatory Commission (NRC) approval for departures from Tier 2\* information, and for departures from Tier 2 information that involve Tier 2\* information, respectively. This departure affects the design pressure of the auxiliary building main steam isolation valve (MSIV) compartments as described in Tier 2\* UFSAR Subsections 3H.3.3, 3H.5.1, and 3H.5.1.3, thus requiring NRC approval. These departures also impact Tier 2 information in UFSAR Subsections 3.6.1.2.2, 3.8.4.3.1.4, and 3D.5.5.2 regarding the design pressure of the auxiliary building MSIV compartments. Thus, as required by 10 CFR 50, a licensing amendment is required. Therefore, a license amendment request (LAR) is supplied herein.

10 CFR 50 Appendix A General Design Criterion (GDC) 4 states that structures, systems, and components important to safety shall be designed to accommodate the effects of and be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These changes do not affect the auxiliary building design requirement to withstand the dynamic effects associated with missiles, pipe whipping, and discharging fluids as described in UFSAR Subsection 3.6. The ability of the auxiliary building MSIV compartments and adjacent rooms, including the main control room, to withstand the pressurization effects from the design basis 1 square foot pipe rupture in the MSIV compartments is not significantly affected by the increase in the MSIV compartment design pressure. Acceptable code margin exists in the reinforced concrete qualification analyses to preclude structural modifications. Structures, systems, and components important to safety remain qualified to perform their design functions at the increased MSIV compartment design pressure. These changes do not affect the auxiliary building design requirement to withstand the dynamic effects associated with missiles, pipe whipping, and discharging fluids as described in UFSAR Section 3.6. Therefore, this criterion continues to be satisfied.

10 CFR 50 Appendix A GDC 16 states that reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require. The changes do not adversely impact the ability of containment to perform its design function. The shield building seals for the piping penetrations in the MSIV compartments remain qualified to withstand the MSIV compartment design pressure. Therefore, the seals will continue to prevent pressurization of the annulus region outside the containment structure, and this criterion continues to be satisfied.

##### **4.2 Precedent**

No precedent is identified.

### **4.3 Significant Hazards Consideration**

The proposed changes would revise the licensing basis documents to increase the design pressure of the main steam (MS) isolation valve (MSIV) compartments from 6.0 psi to 6.5 psi. This activity proposes changes to Updated Final Safety Analysis Report (UFSAR) Tier 2 information and Tier 2\* information.

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:

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

Response: No.

The proposed changes do not adversely affect the operation of any structures, systems, and components inside or outside the auxiliary building that could initiate or mitigate abnormal events, e.g., accidents, anticipated operational occurrences, earthquakes, floods, tornado missiles, and turbine missiles, or their safety or design analyses, evaluated in the UFSAR. The changes do not adversely affect any design function of the auxiliary building or the structures, systems, and components contained therein. The ability of the affected auxiliary building main steam isolation valve compartments and adjacent rooms, including the main control room, to withstand the pressurization effects from the postulated pipe ruptures is not adversely affected by the increase in design pressure, since the structures, systems, and components therein remain qualified for this service.

Therefore, the proposed activity does not involve a significant increase in the probability or consequences of an accident previously evaluated.

#### **4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed changes do not change the design function of the auxiliary building or of any of the structures, systems, and components in the auxiliary building or elsewhere within the Nuclear Island structure. These proposed changes do not introduce any new structures, systems, and components that would result in a new failure mode, malfunction or sequence of events that could affect safety-related or nonsafety-related equipment. This activity does not create a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures.

Therefore, this activity does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No.

The margin of safety for the design of the auxiliary building is maintained through continued use of approved codes and standards as stated in the UFSAR, and adherence to the assumptions used in the analyses of this structure and the events associated with this structure. The auxiliary building continues to be a seismic Category I building with all current structural safety margins maintained. The 3-hour fire rating requirements for the impacted auxiliary building walls are maintained. The equipment housed in the main steam isolation valve compartments continue to be environmentally qualified for their intended service in accordance with the approved codes and standards stated within the UFSAR. Thus, the requested changes will not adversely affect any safety-related equipment, design code, function, design analysis, safety analysis input or result, or design/safety margin. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the requested change, thus, no margin of safety is reduced.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

**4.4 Conclusions**

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The above evaluations demonstrate that the proposed changes can be accommodated without an increase in the probability or consequences of an accident previously evaluated, without creating the possibility of a new or different kind of accident from any accident previously evaluated, and without a significant reduction in a margin of safety. Therefore, it is concluded that the requested 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.

**5. ENVIRONMENTAL CONSIDERATIONS**

The proposed changes affect the licensing basis Tier 2\* information in the Updated Final Safety Analysis Report (UFSAR) Subsections 3H.3.3, 3H.5.1, and 3H.5.1.3 resulting from an increase in the MSIV compartment design pressure from 6.0 psi to 6.5 psi. These departures also impact Tier 2 information in UFSAR Subsections 3.6.1.2.2, 3.8.4.3.1.4, and 3D.5.5.2 regarding the design pressure of the auxiliary building MSIV compartments. The auxiliary building MSIV compartments will continue to conform to the structural acceptance criteria contained in ACI 349-01 for concrete structures and AISC N690-1994 for steel structures. Structures, systems, and components within these compartments and adjacent to these compartments are confirmed

to be environmentally and structurally qualified for the increase in design pressure. The proposed change does not affect the site dispersion factor ( $X/Q$ ) values and does not affect the radiological source terms used in the steam system piping failure analysis.

A review has determined that the requested amendment would change a requirement with respect to installation or use of a facility structure 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 requested 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 requested 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 this license amendment request, 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 requested 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 change to increase the MSIV compartment design pressure is primarily the result of a small increase in the calculated mass and energy release into the MSIV compartments following a postulated 1 square foot break in the main feedwater and main steam lines passing through the MSIV compartments. Because of the substantial margin contained within the dose calculations for the main steam line break, there is no significant impact on the calculated offsite doses as currently evaluated for the accident as this is not the limiting accident for offsite releases. The proposed change does not impact 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). Furthermore, the proposed change does not adversely 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, 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.

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Request for License Amendment Regarding Increase in MSIV Compartment Pressure  
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- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed change to increase the design pressure of the MSIV compartments does not adversely affect or change any walls, floors or other structures that mitigate occupational radiation exposure. Plant radiation zones are not affected, and there are no changes to the controls required by 10 CFR 20 that preclude a significant increase in occupational radiation exposure. Therefore, the requested 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 impacts of the proposed amendment do 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 exemption is not required.

## **6. REFERENCES**

None.

**Southern Nuclear Operating Company**

**ND-17-1417**

**Enclosure 2**

**Vogtle Electric Generating Plant Units 3 and 4**

**Proposed Changes to Licensing Basis Documents**

**(LAR-17-028)**

Additions identified by blue underlined text.

~~Deletions Identified by red strikethrough of text.~~

\* \* \* indicates omitted existing text that is not shown.

(This Enclosure consists of 7 pages, including this cover page)

**Revise UFSAR Tier 2 Subsection 3.6.1.2.2, Main Control Room Habitability, following the fifth paragraph, add the following text:**

### **Section 3.6.1.2.2, Main Control Room Habitability**

\* \* \*

Further description of the control room habitability systems, including options for remote shutdown, is provided in Section 6.4. The remote shutdown workstation is not subject to adverse effects of high-energy pipe rupture.

#### **Main Steam Isolation Valve Compartment De-Pressurization Flow Paths**

The MSIV Compartment B (Figures 1.2-7, 1.2-8, 1.2-10 and 1.2-11), which is adjacent to the main control room, houses the main feedwater, startup feedwater, and main steam lines, as they pass to and from primary containment through the shield building, and to and from the turbine building, the MSIVs, the main steam safety valves (MSSVs), the power-operated relief valves (PORVs), the PORV block valves, and other essential components. As a result of a main steam or main feedwater high-energy line pipe break in MSIV Compartment B adjacent to the Main Control Room or MSIV Compartment A, the MSIV compartments de-pressurize by venting through the following pathways:

- MSIV Compartment A
  - o drains/vents to Turbine Building first bay
  - o floor penetrations to Room 12306, which is the Valve/Piping Penetration Room located below, through Room 12306 door to Turbine Building first bay
  - o door to Turbine Building first bay
  - o roof vent to atmosphere
- MSIV Compartment B
  - o drains/vents to Turbine Building first bay
  - o door to Turbine Building first bay
  - o roof vent to atmosphere

These pressure relief flow paths limit the design pressure loading while maintaining the environmental and structural integrity of the MSIV compartments, adjacent compartments, the Main Control Room, and equipment housed therein.

Revise UFSAR Tier 2 Subsection 3.8.4.3.1.4, Abnormal Loads,  $P_a$  definition, replace second sentence, to address 6.5 psi pressurization load, as shown below.

#### 3.8.4.3.1.4, Abnormal Loads

\* \* \*

$P_a$ = Pressure load within or across a compartment generated by the postulated break. ~~The main steam isolation valve (MSIV) and steam generator blowdown valve compartments are designed for a pressurization load of 6 psi.~~ The main steam isolation valve (MSIV) valve compartments are designed for a 6.5 psi pressurization load. The steam generator blowdown valve compartment is designed for a 6 psi pressurization load. The subcompartment design pressure bounds the pressurization effects due to postulated breaks in high energy pipe. Determination of subcompartment pressure loads is discussed in Subsection 6.2.1.2.

**Revise UFSAR Tier 2 Subsection 3.D.5.5.2, High-Energy Line Break Accidents Outside Containment, second paragraph, revise text to the last sentence, to address 6.5 psi pressurization load, as shown below.**

**3D.5.5.2, High-Energy Line Break Accidents Outside Containment**

\* \* \*

Figure 3D.5-9 does not include margin from IEEE 323-1974, which will be incorporated in the environmental qualification programs. The maximum pressure for any event outside containment is 6 psig, with the exception of the MSIV compartments, which are designed for a 6.5 psi pressurization load.

Revise UFSAR Tier 2\* Subsection 3H.3.3, Loads, seventh subheading, Effects of Pipe Rupture (Y), replace first bullet, second paragraph to address 6.5 psi pressurization load, as shown below.

### 3H.3.3 Loads

\* \* \*

#### Effects of Pipe Rupture (Y)

[The evaluations consider the following loads:

- *Accident design pressure load, Pa, within or across a compartment and/or building generated by the postulated pipe rupture, including the dynamic effects due to the pressure time history.*

~~Main steam isolation valve (MSIV) and steam generator blowdown valve compartments are designed for a pressurization load of 6 pounds per square inch (psi).~~ The main steam isolation valve (MSIV) compartments are designed for a 6.5 pounds per square inch (psi) pressurization load. The steam generator blowdown valve compartment is designed for a 6 psi pressurization load.

\* \* \*

**Revise UFSAR Tier 2\* Subsection 3H.5.1, Shear Walls, second subheading Design Approach, second bullet, first sub-bullet, change 6 to 6.5 psi pressurization load, as shown below.**

**3H.5.1, Shear Walls**

\* \* \*

- *Accident pressure load*
  - *Shear walls of the main steam isolation valves (MSIV) rooms are designed for ~~6~~6.5 pounds per square inch (psi) differential pressure acting in conjunction with the seismic loads. Member forces due to accident pressure and SSE are combined by absolute sum.*

\* \* \*

**Revise UFSAR Tier 2\* Subsection 3H.5.1.3, Wall at Column Line L, second paragraph, change 6 to 6.5 psi pressurization load, as shown below.**

**3H.5.1.3, Wall at Column Line L**

\* \* \*

*The auxiliary building design loads are described in subsection 3H.3.3, and the wall is designed for the applicable loads. In addition to the dead, live and seismic loads, the wall is designed to withstand a ~~6~~6.5 pounds per square inch pressure load due to a pipe break in the MSIV room even though it is a break exclusion area. This wall segment is also designed to withstand a jet load due to the pipe break.*

\* \* \*