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SOUTHERN COMPANY

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NL-14-1219

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant, Units 1 and 2
Pilot 10 CFR 50.69 License Amendment Request
Response to Request for Additional Information
Regarding the No Significant Hazards Consideration Determination

References:

1. Southern Nuclear Operating Company letter to the NRC, *Vogtle Electric Generating Plant Pilot 10 CFR 50.69 License Amendment Request*, dated August 31, 2012 (NL-12-0932)

2. Southern Nuclear Operating Company letter to the NRC, *Vogtle Electric Generating Plant Pilot 10 CFR 50.69 License Amendment Request Response to Request for Additional Information*, dated September 13, 2013 (NL-13-1937)

3. Southern Nuclear Operating Company letter to the NRC, *Vogtle Electric Generating Plant – Unit 1 and Unit 2 Pilot 10 CFR 50.69 License Amendment Request Response to Request for Additional Information*, dated May 2, 2014 (NL-14-0580)

4. Southern Nuclear Operating Company letter to the NRC, *Vogtle Electric Generating Plant Pilot 10 CFR 50.69 License Amendment Request Response to Request for Additional Information Implementation Items*, dated July 22, 2014 (NL-14-0960)

5. NRC letter to Southern Nuclear Operating Company, *Vogtle Electric Generating Plant, Units 1 and 2 (VEGP) – Request for Additional Information on No Significant Hazards Consideration Determination (TAC Nos. ME9472 and ME9473)*, dated July 31, 2014

Ladies and Gentlemen:

By Reference 1 (as supplemented by Reference 2, 3, and 4), Southern Nuclear Operating Company (SNC) submitted a license amendment request for the Vogtle Electric Generating Plant to implement Title 10 of the *Code of Federal Regulations* (10 CFR) § 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors."

By Reference 5, the NRC requested additional information to facilitate their review. The Enclosure to this letter contains SNC's response to the NRC questions, which are provided before each SNC response.

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at (205) 992-7369.

Mr. C. R. Pierce states he is the Regulatory Affairs Director of 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,

C. R. Pierce

C. R. Pierce
Regulatory Affairs Director

CRP/EGA

Sworn to and subscribed before me this 11 *day of* August, *2014.*

Laura L. Crook
Notary Public

My commission expires: 10/8/2017

Enclosure: Response to Request for Additional Information Regarding the No Significant Hazards Consideration Determination

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. T. E. Tynan, Vice President – Fleet Operations
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. D. R. Madison, Vice President – Vogtle 1 & 2
Mr. B. J. Adams, Vice President – Engineering
Mr. S. C. Waldrup, Regulatory Affairs Manager – Vogtle
RType: CVC7000

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. R. E. Martin, NRR Senior Project Manager – Vogtle 1 & 2
Mr. L. M. Cain, Senior Resident Inspector – Vogtle 1 & 2

Vogtle Electric Generating Plant, Units 1 & 2
Response to Request for Additional Information
Regarding the No Significant Hazards Consideration Determination

Enclosure

Response to Request for Additional Information
Regarding the No Significant Hazards Consideration Determination

NRC Question:

1. With respect to whether operation of the facility in accordance with the proposed amendment would involve a significant increase in the probability or consequences of an accident previously evaluated, as addressed by 10 CFR 50.92(c)(1), provide responses to the following requests for information.

   a. With respect to the analysis of design basis events in the Updated Final Safety Analysis Report (UFSAR) for the VEGP, discuss the basis for your conclusions regarding whether the proposed amendment would:

      (i) adversely affect accident initiators or precursors,
      (ii) adversely alter design assumptions, conditions, or configurations of the facility,
      (iii) adversely impact the ability of SSCs to perform their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits,

   b. Discuss the basis for your conclusions regarding whether the ability of SSCs to perform their design function as required by the accident analysis would be affected.

   c. Discuss the basis for your conclusions regarding whether structures, systems, and components required to safely shut down the reactor and to maintain it in a safe shutdown condition will remain capable of performing their design functions.

   d. Discuss the basis for your conclusions regarding whether any increases post transition in core damage frequency or risk associated with the LAR submittal impact the conclusions reached with respect to the standard in § 50.92(c)(1).

   e. Discuss the basis for your conclusions regarding whether equipment required to mitigate an accident remains capable of performing the assumed function and accordingly, whether the consequences of any accident previously evaluated could be determined to not be significantly increased with the implementation of the amendment.

   f. Discuss whether the proposed amendment will affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of any accident previously evaluated and accordingly whether the applicable radiological dose criteria will continue to be met.

   g. In the issuance of the final rule (69 FR 68014), it is stated that:

      > The NRC recognizes that the reliability of RISC-3 SSCs could potentially decrease (RISC-3 SSC failure rates increase) due to the reduction in treatment applied to these SSCs as a result of § 50.69 implementation. This is the reason why the Commission requires in the rule that the licensee demonstrate with reasonable confidence that any potential risk increase due to implementation of the rule will be small.

      Please discuss this subject with respect to ensuring that the 50.92(c)(1) standard will be met by implementation of § 50.69 at the VEGP.

SNC Response to NRC Question 1:

Operation of the Vogtle Electric Generating Plant (VEGP) in accordance with the proposed amendment does not result in a significant increase in the probability or consequences of accidents previously evaluated. The Updated Final Safety Analysis Report (UFSAR) documents the analysis of design basis accidents at VEGP. The proposed amendment does not affect accident initiators, nor does it alter design assumptions, conditions, or configurations of the facility that would increase the probability of accidents previously evaluated, nor does it adversely alter design assumptions, conditions, or configurations of the facility, and it does not adversely impact the ability of structures, systems, or components (SSCs) to perform their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits, nor do they affect assumed failure modes for accidents described and evaluated in the UFSAR. The proposed changes do not affect the way in which required systems perform their functions as required by the accident analysis. Structures, systems, and components required to safely shut down the reactor and maintain it in a safe shutdown condition will remain capable of performing their design functions.

Furthermore, the source term and radiological release assumptions of previously evaluated events are not affected by the alternative treatments permitted under 10 CFR 50.69; containment isolation devices assumed to function under accident conditions will not have their reliability adversely affected by the proposed amendment. Consequently, operating under the proposed amendment will not result in a significant increase in the radiological dose consequences assumed for previously analyzed events.

Section 50.69 defines the terminology "safety significant function" as functions whose loss or degradation could have a significant adverse effect on defense-in-depth, safety margins, or risk. For SSCs determined to be safety significant, 50.69 maintains the current regulatory requirements. These current requirements are adequate for addressing design basis performance of these SSCs.

The purpose of this amendment is to permit VEGP to adopt a new risk-informed licensing basis for categorization and treatment of structures, systems and components. The proposed VEGP Units 1 and 2 OL LCs will allow for the voluntary implementation of 10 CFR 50.69. The SNC risk-informed categorization process has been documented per the requirements of 10 CFR 50.69(b)(2) and meets the requirements of 10 CFR 50.69(c). A probabilistic approach to regulation enhances and extends the traditional deterministic approach by allowing consideration of a broader set of potential challenges to safety and providing a logical means for prioritizing these challenges based on safety significance. The SNC risk-informed categorization process will be used to modify the scope of SSCs subject to special treatment requirements. Alternative treatments permitted per 10 CFR 50.69(b)(1) and 10 CFR 50.69(d)(2) can then be applied consistent with the categorization of the SSCs. The process provides reasonable confidence that, for SSCs categorized as RISC-3, sufficient safety margins are maintained and that any potential increases in CDF and LERF resulting from changes in treatment are small per 10 CFR 50.69(c)(1)(iv). The proposed OL LCs do not result in or require any physical or operational changes to VEGP SSCs, including SSCs intended for the prevention or mitigation of accidents. Implementation of 10 CFR 50.69 in compliance with 10 CFR 50.69 requirements ensures that RISC-1 and RISC-3 SSCs remain capable of performing their design basis functions, including safety-related functions, under design basis conditions. In

addition, the process ensures that RISC-2 SSCs are capable of performing their safety significant functions.

Based on the above, implementation of this amendment to implement 10 CFR 50.69 risk-informed categorization and treatment of structures, systems, and components does not involve a significant increase in the probability of any accident previously evaluated. In addition, all equipment required to mitigate an accident remains capable of performing the assumed function. Therefore, consequences of any accident previously evaluated are not significantly increased with the implementation of this License Amendment.

NRC Question:

2. With respect to whether operation of the facility in accordance with the proposed amendment would create the possibility of a new or different kind of accident from any accident previously evaluated, as addressed by 10 CFR 50.92(c)(2), provide responses to the following requests for information.

   a. Discuss the basis for your conclusions regarding whether the proposed change would alter the requirements or function for systems required during accident conditions, i.e., whether implementation of a new risk-informed categorization licensing basis which complies with the requirements in 10 CFR 50.69 will involve new failure mechanisms or malfunctions that can initiate a new accident.

   b. Discuss the basis for your conclusions regarding whether the proposed amendment would adversely affect accident initiators or alter design assumptions, conditions, or configurations of the facility.

   c. Discuss whether the proposed amendment will introduce any new accident scenarios, transient precursors, failure mechanisms, or limiting single failure modes that are not bounded by previously evaluated accidents.

   d. Were all scenarios or previously analyzed accidents with potential offsite dose consequences included in the evaluation of the transition to 10 CFR 50.69?

SNC Response to NRC Question 2:

Operation of VEGP in accordance with the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed amendment does not impact any scenario or previously analyzed accident with offsite dose consequences included in the evaluation of design basis accidents (DBA) documented in the FSAR. The proposed change does not alter the requirements or functions for systems required during accident conditions, nor does it alter the required mitigation systems as assumed in the licensing basis analyses and/or DBA radiological consequences evaluations. Implementation of the 50.69 categorization will not result in new or different accidents.

The proposed amendment does not adversely affect accident initiators nor alter design assumptions, or conditions of the facility. The proposed amendment does not introduce new or different accident initiators; neither does it introduce new modes of operation. The proposed amendment does not adversely affect the ability of SSCs to perform their design function. SSCs

required to safely shutdown the reactor and maintain it in a safe shutdown condition remain capable of performing their design function.

Section 50.69 represents an alternative set of requirements whereby a licensee may voluntarily undertake categorization of its SSCs consistent with the requirements in 50.69(c), remove the special treatment requirements listed in 50.69(b) for SSCs that are determined to be of low safety significance, and implement alternative treatment requirements in 50.69(d). The regulatory requirements not removed continue to apply. These requirements are adequate for addressing design basis performance of these SSCs. This license amendment continues to maintain the principles that the net increase in plant risk is small, defense-in-depth is maintained, and safety margins are maintained.

The proposed VEGP Units 1 and 2 OL LCs will allow for the voluntary implementation of 10 CFR 50.69. The SNC risk-informed categorization process has been documented per the requirements of 10 CFR 50.69(b)(2) and meets the requirements of 10 CFR 50.69(c). The SNC risk-informed categorization process will be used to modify the scope of SSCs subject to special treatment requirements. Alternative treatments permitted per 10 CFR 50.69(b)(1) and 10 CFR 50.69(d)(2) can then be applied consistent with the categorization of the SSCs. The process provides reasonable confidence that, for SSCs categorized as RISC-3, sufficient safety margins are maintained and that any potential increases in CDF and LERF resulting from changes in treatment are small per 10 CFR 50.69(c)(1)(iv). The proposed OL LCs do not result in or require any physical or operational changes to VEGP SSCs, including SSCs intended for the prevention or mitigation of accidents. Implementation of 10 CFR 50.69 in compliance with 10 CFR 50.69 requirements ensures that RISC-1 and RISC-3 SSCs remain capable of performing their design basis functions, including safety-related functions, under design basis conditions. In addition, the process ensures that RISC-2 SSCs are capable of performing their safety significant functions. Therefore, even though there was not an individual evaluation done of every UFSAR accident with potential off-site dose consequences, it can be concluded that the SSCs, assumed to mitigate the consequences of any and all previously evaluated events, will not be adversely affected by the alternative treatments allowed under 10 CFR 50.69. Consequently, the dose consequences of previously analyzed events will not significantly increase as a result of the alternative treatment of SSCs. Additionally, implementation of 10 CFR 50.69 will not create new failure mechanisms that initiate new accidents because the process does not result in or require any physical or operational changes for VEGP SSCs nor does it alter the functions or functional requirements of those SSCs.

Based on this, implementation of the proposed amendment would not create the possibility of a new or different kind of accident from any kind of accident previously evaluated. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of this amendment. There will be no adverse effect or challenges imposed on required systems as a result of this amendment. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

NRC Question:

3. With respect to whether operation of the facility in accordance with the proposed amendment would involve a significant reduction in a margin of safety, as addressed by 10 CFR 50.92(c)(3), provide responses to the following requests for information.

a. Discuss whether the proposed amendment would alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined.

b. Discuss whether the safety analysis acceptance criteria are affected by this change.

c. Discuss whether the proposed amendment would adversely affect existing plant safety margins or the reliability of equipment assumed to mitigate accidents in the Updated Final Safety Analysis Report.

d. Discuss the basis for your conclusions regarding whether the proposed changes are evaluated to ensure that risk and safety margins are kept within acceptable limits, with respect to the criterion of 10 CFR 50.92(c)(3).

e. Discuss any engineering analyses, engineering evaluations, probabilistic safety assessments or calculations that have been performed to demonstrate that the implementation of 50.69 will not result in a significant reduction in the margin of safety as addressed by 50.92(c).

SNC Response to NRC Question 3:

Operation of VEGP in accordance with the proposed amendment does not involve a significant reduction in the margin of safety. Implementation of a new risk informed categorization and treatment of structures, systems, and components licensing basis that complies with the requirements of 10 CFR 50.69 does not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined. The safety analysis acceptance criteria are not affected by this change. The proposed amendment does not adversely affect existing plant safety margins or the reliability of equipment assumed in the UFSAR to mitigate accidents. The proposed change does not adversely affect the ability of SSCs to perform their design function. The 10 CFR 50.69 process provides reasonable confidence that SSCs categorized as RISC-1, RISC-2, and RISC-3 maintain sufficient safety margins. The proposed amendment does not adversely impact systems required to safely shutdown the plant and maintain it in a safe condition.

The proposed VEGP Units 1 and 2 OL LCs will allow for the voluntary implementation of 10 CFR 50.69. The SNC risk-informed categorization process has been documented per the requirements of 10 CFR 50.69(b)(2) and meets the requirements of 10 CFR 50.69(c). The SNC risk-informed categorization process will be used to modify the scope of SSCs subject to special treatment requirements. Alternative treatments permitted per 10 CFR 50.69(b)(1) and 10 CFR 50.69(d)(2) can then be applied consistent with the categorization of the SSCs. Although there were no calculations or evaluations performed for the express purpose of demonstrating that the implementation of 10 CFR 50.69 will not result in a significant reduction in the margin of safety, the process provides reasonable confidence that, for SSCs categorized as RISC-3, sufficient safety margins are maintained and that any potential increases in CDF and LERF resulting from changes in treatment are small per 10 CFR 50.69(c)(1)(iv). The only requirements that are relaxed for SSCs, consistent with their categorization, are those related to treatment. The safety margins associated with SSCs design basis functions and design technical requirements remain unchanged. Additionally, it is required that there be reasonable confidence that any potential increases in CDF and LERF be small from assumed changes in reliability resulting from the treatment changes permitted by 10 CFR 50.69. As a result individual SSCs continue to

be capable of performing their design basis functions. It is concluded that sufficient safety margins are preserved. Therefore, the proposed change does not involve a significant reduction in a margin of safety.