



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 28, 2018

Mr. James J. Hutto
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
P.O. Box 1295, Bin 038
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 – REQUEST FOR
ADDITIONAL INFORMATION RE: INCORPORATE SEISMIC PROBABILISTIC
RISK ASSESSMENT INTO THE 10 CFR 50.69 CATEGORIZATION PROCESS
(CAC NOS. MF9861 AND MF9862; EPID L-2017-LLA-0248)

Dear Mr. Hutto:

By letter dated June 22, 2017, the Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request regarding the Vogtle Electric Generating Plant, Units 1 and 2 (VEGP). The proposed amendment would modify the licensing basis to implement a change to the approved voluntary implementation of the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors." The proposed amendment would incorporate the use of the VEGP seismic probabilistic risk assessment into the previously approved 10 CFR 50.69 categorization process.

The Nuclear Regulatory Commission (NRC) staff issued a request for additional information by letter dated January 5, 2018. SNC responded by letters dated February 6 and February 21, 2018. The NRC staff has reviewed the responses and has determined that additional information is needed for the staff to complete its evaluation. During a clarification call on March 28, 2018, Mrs. Burns agreed that SNC respond within 30 days of the date of this letter. The NRC staff's review is continuing and further requests for information may be developed.

Sincerely,

A handwritten signature in cursive script that reads "Michael Orenak" with a small "for" written above the end of the signature.

Michael Orenak, Project Manager
Plant Licensing Branch, II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosure:
Request for Additional Information

cc w/enclosure: Listserv

REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST
INCORPORATE SEISMIC PROBABILISTIC RISK ASSESSMENT
INTO 10 CFR 50.69 CATEGORIZATION PROCESS
SOUTHERN NUCLEAR OPERATING COMPANY, INC.
VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2
DOCKET NOS. 50-424 AND 50-425

By letter dated June 22, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17173A875), the Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) regarding the Vogtle Electric Generating Plant, Units 1 and 2 (VEGP). The proposed amendment would modify the licensing basis to implement a change to the approved voluntary implementation of the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors." The proposed amendment would incorporate the use of the VEGP seismic probabilistic risk assessment (SPRA) into the previously approved 10 CFR 50.69 categorization process.

The U.S. Nuclear Regulatory Commission (NRC) staff issued a request for additional information (RAI) by letter dated January 5, 2018 (ADAMS Accession No. ML17354A782). SNC responded by letters dated February 6, 2018 (ADAMS Accession No. ML18037B121), and February 21, 2018 (ADAMS Accession No. ML18052B342). The NRC staff has reviewed the responses and has determined that additional information is needed for the staff to complete its evaluation.

RAI 3b-1

In letter dated January 5, 2018, the NRC requested in RAI 3b that the licensee demonstrate how the limitations and conditions in the NRC staff's safety evaluation for PWROG-14001-P, Revision 1, "PRA Model for the Generation III Westinghouse Shut-Down Seal," (ADAMS Accession No. ML17200C876) are being met. The licensee's response stated, in part, that the Limitation and Condition 2 (demonstration of seal operation subsequent to exceedance of a particular cold leg temperature) is addressed "probabilistically" in the VEGP SPRA but did not provide supporting information. It is, therefore, not apparent how the licensee addressed Limitation and Condition 2 probabilistically. Furthermore, the licensee's response does not describe whether and how the VEGP SPRA addresses the impact of asymmetric reactor coolant system (RCS) cooling on seal operation.

- i. Please describe how the VEGP SPRA addresses Limitation and Condition 2 "probabilistically".

- ii. Please discuss how the VEGP SPRA addresses the impact of asymmetric RCS cooling on seal operation.

RAI 8-1

In RAI 8a, the NRC requested to justify how the required risk sensitivity study outlined in Section 8 of Nuclear Energy Institute (NEI) 00-04, "10 CFR 50.69 SSC [Structures, Systems, and Components] Categorization Guideline," dated July 2005 (ADAMS Accession No. ML052910035), will be performed for categorization using the SPRA. In its response to RAI 8a, the licensee states that the risk sensitivity study is not intended to be mechanistic and is a test to determine that an adequate margin to risk acceptance guidelines exist. Furthermore, the response stated that no changes other than that the factor of three change in unreliability and unavailability for low safety significance (LSS) components is required, because the factor of three increase addresses "any failure mechanism" of the modeled component. The response to RAI 8b also states that the validity of modeling inputs would be maintained by periodic updates to the SPRA model.

The responses to RAIs 8a and 8b appear to justify keeping the seismic capacity of LSS components unchanged as part of the risk sensitivity study outlined in Section 8 of NEI 00-04. It appears that the proposed approach to performing the risk sensitivity study for categorization using the SPRA may not be sufficient to ensure that an adequate margin to risk guidelines exist if seismic capacities are affected, specifically when components do not have associated random failures or seismic failures dominate the random failures.

Please describe how the risk sensitivity study approach addresses the potential impact on seismic capacities. Alternatively, please discuss why seismic capacities will not be affected by the categorization program such that changing the seismic capacity of LSS components as a part of the risk sensitivity study described in Section 8 of NEI 00-04 analysis would not be warranted.

RAI 9b-1

In RAI 9b, the NRC requested that the licensee describe how the SPRA importance measures will be used to calculate the integrated importance measures and justify any impact of the approach for calculating the SPRA importance measures on the integral assessment. The licensee's response stated that the formulae in NEI 00-04 for integrated importance measures will be used to "combine the seismic importance measures with the internal events and fire importance measures." It is not apparent from the licensee's response and the NEI 00-04 guidance how the integrated importance measures are calculated for certain SPRA basic events that may not align with basic events in other PRA models. Examples of such SPRA basic events include SPRA basic events that are specific to the SPRA model or SPRA basic events that represent a subcomponent modeled within the boundary of an internal events PRA component.

Please describe and justify how the integrated importance measures are calculated for SPRA basic events that may not align with basic events in other PRA models.

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 – REQUEST FOR ADDITIONAL INFORMATION RE: INCORPORATE SEISMIC PROBABILISTIC RISK ASSESSMENT INTO THE 10 CFR 50.69 CATEGORIZATION PROCESS (CAC NOS. MF9861 AND MF9862; EPID L-2017-LLA-0248) DATED MARCH 28, 2018

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ADAMS Accession No. ML18079A957

*Via e-mail

OFFICE	DORL/LPL2-1/PM	DORL/LPL2-1/LA	DRA/APLA/ABC*
NAME	MOrenak (SWilliams for)	KGoldstein	CFong
DATE	03/22/18	03/20/18	03/19/18
OFFICE	DORL/LPL2-1/BC	DORL/LPL2-1/PM	
NAME	MMarkley	MOrenak (SWilliams for)	
DATE	03/23/18	03/28/18	

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