



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

June 15, 2016

Mr. C. R. Pierce  
Regulatory Affairs Director  
Southern Nuclear Operating Company, Inc.  
P.O. Box 1295, Bin - 038  
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 – REQUEST FOR  
ADDITIONAL INFORMATION (CAC NOS. ME9555 AND ME9556)

Dear Mr. Pierce:

By letter dated September 13, 2012, Southern Nuclear Operating Company, Inc. (SNC) submitted a license amendment request to modify the Vogtle Electric Generating Plant, Units 1 and 2, Technical Specifications to permit the use of risk-informed completion times in accordance with Nuclear Energy Institute (NEI) Report NEI 06-09, Revision 0, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines."

By letters dated May 16, 2013; June 9, June 25, and October 14, 2014; and December 17, 2015, the U.S. Nuclear Regulatory Commission (NRC) staff requested additional information. By letters dated August 2, 2013; July 3, July 17, November 11, and December 12, 2014; March 16 and May 5, 2015; and February 17 and April 18, 2016, SNC responded to those requests and supplemented its application.

The NRC staff finds that additional information is needed as set forth in the enclosure. Per electronic mail from Mr. Ozzie Vidal of SNC's staff dated June 14, 2016, it was agreed that a response would be provided within 30 days of the date of this letter. If SNC does not respond to this letter by the agreed-upon date, or provide an acceptable alternate date in writing, the NRC may deny the application for amendment under the provisions of Title 10 of the *Code of Federal Regulations*, Section 2.108.

C. Pierce

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If you have any questions regarding this matter, please contact the project manager, Ms. Audrey Klett, at (301) 415-0489 or [Audrey.Klett@nrc.gov](mailto:Audrey.Klett@nrc.gov).

Sincerely,



Audrey L. Klett, Project Manager  
Plant Licensing Branch II-2  
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: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO PERMIT USE OF RISK-INFORMED COMPLETION

TIMES IN ACCORDANCE WITH NEI 06-09, REVISION 0

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-424 AND 50-425

By letter dated September 13, 2012,<sup>1</sup> Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted a license amendment request (LAR) to modify the Vogtle Electric Generating Plant, Units 1 and 2, Technical Specifications (TSs) to permit the use of risk-informed completion times in accordance with Nuclear Energy Institute (NEI) Report NEI 06-09, Revision 0, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines."<sup>2</sup>

By letters dated May 16, 2013; June 9, June 25, and October 14, 2014; and December 17, 2015,<sup>3</sup> the U.S. Nuclear Regulatory Commission (NRC) staff requested additional information. By letters dated August 2, 2013; July 3, July 17, November 11, and December 12, 2014; March 16 and May 5, 2015; and February 17 and April 18, 2016,<sup>4</sup> SNC responded to those requests and supplemented its application.

The NRC staff finds that additional information is needed as set forth below.

**PRA RAI S-1** Constraints on "PRA functionality" when applied during TS loss of function

Limiting conditions for operation (LCOs) are the lowest functional capability, or performance levels, of equipment required for safe operation of the facility. Section 50.36 of Title 10 of the *Code of Federal Regulations* requires that when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met. Upon declaration of TS loss of function (TS LOF) (i.e., that the TS-required equipment is inoperable and the TS-specified safety function cannot be accomplished), the associated TS completion time permits a brief period to restore equipment to operable status, if possible, and to prepare for an orderly shutdown. If the restoration is unsuccessful, then the TSs require a plant shutdown.

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<sup>1</sup> Agencywide Documents Access and Management System (ADAMS) Accession No. ML12258A055

<sup>2</sup> ADAMS Accession No. ML12286A322

<sup>3</sup> ADAMS Accession Nos. ML13130A103, ML14132A313, ML14170B228, ML14246A480, and ML15323A416, respectively

<sup>4</sup> ADAMS Accession Nos. ML13217A072, ML14189A554, ML14198A574, ML14315A051, ML14346A643, ML15075A479, ML15125A446, ML16048A096, and ML16109A338, respectively

Enclosure

Technical Specification Task Force (TSTF) Traveler TSTF-505, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," guidance for Enclosure 1 of an LAR instructs a licensee to include a description of probabilistic risk assessment (PRA) functionality used for each associated inoperable safety function. In Section 4.0, "Limitations and Conditions," of the NRC staff's safety evaluation (SE) dated May 17, 2007, for NEI topical report NEI 06-09, the NRC staff stated that LARs should provide a comparison of the TS functions to the PRA-modeled functions of the structures, systems, and components (SSCs) subject to those LCO actions. The SE states that this comparison should justify that the scope of the PRA model, including applicable success criteria such as number of SSCs required, flowrate, etc., are consistent with the licensing basis assumptions (i.e., Title 10 of the *Code of Federal Regulations* Section 50.46, emergency core cooling system (ECCS) flowrates) for each of the TS requirements, or an appropriate disposition or programmatic restriction will be provided. The licensee's submittal did not provide a sufficient level of detail for the NRC staff to evaluate how PRA functional compares with each associated inoperable safety function.

To address that issue, by letter dated December 17, 2015, the NRC staff requested the licensee to provide additional explanation about how the definition of PRA functional in NEI 06-09 maintains sufficient defense-in-depth and safety margins when used during a TS LOF condition. SNC responded to RAIs 1.a and 2.c in its letter dated February 17, 2016, and RAI 2.a in its letter dated April 18, 2016, and proposed additional constraints on establishing PRA functional to maintain sufficient defense-in-depth and safety margins when using PRA functional during TS LOF conditions.

The NRC staff determined that even with the additional constraints proposed by the licensee, there remains uncertainty associated with establishing and maintaining PRA functional during a TS LOF without the comparison of TS functions to PRA modeled functions when all trains of equipment are inoperable. All configurations that could be assigned PRA functional under these conditions have not been predetermined nor reviewed and approved by the NRC.

Considering the remaining uncertainty associated with the PRA functional determination, the NRC staff requests that SNC provide justification for its position and/or any additional constraints or controls that may be warranted to address this uncertainty.

- A. The NRC staff requests SNC to discuss the completion time backstop associated with TS LOF and its basis. In particular, the NRC requests SNC to clarify whether it intends to adopt a 24-hour backstop (and if so, how it intends to do so, in addition to providing marked up TS pages), and whether SNC intends to revise TS 5.5.22 to incorporate the following constraints delineated in SNC's previous RAI response (and if so, how it intends to do so, in addition to providing marked up TS pages):
  - i. Alternative SSCs cannot replace the SSCs covered by the TSs as described in the response to RAI 1.a.
  - ii. Design-basis success criteria parameters shall be met for design-basis accident scenarios that are not modelled in the internal events PRA as described in the response to RAI 2.a.
  - iii. Design-basis success criteria parameters shall be met for design-basis accident scenarios modelled in the internal events PRA as described in the response to RAI 2.c.

- B. If SNC does not intend to adopt the 24-hour backstop and the aforementioned constraints in PRA RAI S-1.A, then the staff requests SNC to discuss a proposed alternative to RAI S-1.A to address the aforementioned uncertainty and the limitations and conditions in the NRC staff's SE dated May 7, 2007.

**PRA RAI S-2** Consistency between constraints on "PRA functionality" in RAI S-1 and proposed changes to the TSs upon LOF

The proposed revision to TS 3.5.2, "ECCS – Operating," on page 3.5.2-1 of the submittal dated September 13, 2012, includes an "Insert 5." Insert 5 includes a new Condition B that states, "Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available," with a Completion Time of "1 hour OR In accordance with the Risk Informed Completion Time Program." The attachments to the licensee's supplement dated November 11, 2014, provide new and/or changes to the TSs proposed in the amendment request. TS 3.5.2 is not listed as being changed from the supplement dated November 11, 2014.

- A. It appears that the proposed revision to TS 3.5.2 still includes the new Condition B., "Less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available" with a Completion Time of "1 hour OR In accordance with the Risk Informed Completion Time Program." The NRC staff requests SNC to clarify its intent to proceed with the requested change to TS 3.5.2.
- B. If Insert 5 is still intended to be included, then the NRC staff requests SNC to explain how this is consistent with the constraints identified in PRA RAI S-1.A above, or to remove the new condition.
- C. The NRC staff requests SNC to identify any proposed changes to the TSs that conflict with the constraints or controls identified in PRA RAI S-1 and to provide a disposition of any conflict.

**DORL-RAI-1**

In the LAR and its associated revised TS pages, SNC refers to NEI 06-09, Revision 0. NEI 06-09, Revision 0-A, incorporates changes based on the NRC staff's SE dated May 7, 2007, of NEI 06-09, Revision 0. The staff requests SNC to clarify whether it intends to incorporate NEI 06-09, Revision 0-A, in the TSs, and if so, submit marked up TS pages that reference Revision 0-A of NEI 06-09.

C. Pierce

- 2 -

If you have any questions regarding this matter, please contact the project manager, Ms. Audrey Klett, at (301) 415-0489 or [Audrey.Klett@nrc.gov](mailto:Audrey.Klett@nrc.gov).

Sincerely,

*/RA/*

Audrey L. Klett, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosure:  
Request for Additional Information

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