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March 23, 2016

Docket Nos.: 52-025  
52-026

ND-16-0448  
10 CFR 55.46(b)  
10 CFR 55.49

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

Ms. Jennifer L. Uhle  
Director, Office of New Reactors  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Units 3 and 4  
Information Pertaining to SNC's  
Request for a Commission-Approved Simulation Facility – Supplement - SBT

Ladies and Gentlemen:

Southern Nuclear Operating Company (SNC) is providing information supplemental to its Request for a Commission-Approved Simulation Facility that was submitted to the NRC by letter dated September 18, 2015 [ADAMS Accession No. ML15265A107].

This letter supersedes the commitments and information contained in its letter ND-16-0437, dated March 18, 2016 [ADAMS Accession No. ML16081A115].

The enclosure to this letter provides the information.

This letter contains the following regulatory commitments:

1. Scenario Based Testing (SBT) run-time will be adjusted as follows:
  - a. The longest scenario validation time will be used as the baseline run-time.
  - b. SBT will be run for twice the validation time or 3 hours, whichever is longer.
  - c. Any scenario that exceeds the validation time after it has been validated, as described above, will be deemed invalid.
2. SNC commits to NEI 09-09, "Nuclear Power Plant-Referenced Simulator Scenario Based Testing Methodology," Rev. 1.

3. SNC will communicate final SBT run-times to the NRC Region II Operator Licensing Branch prior to the NRC examination preparation week.

SNC will discontinue this modified process (items 1, 2, and 3 above) upon declaration of its simulation facility as a plant-referenced simulator as defined by 10 CFR 55.46(c).

If you have any questions, please contact Michael Yox at (706) 848-6459.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

A handwritten signature in black ink, appearing to read "Karen D. Fili". The signature is fluid and cursive, with the first name "Karen" being more prominent.

Karen D. Fili  
KDF/MC/amm

Enclosure:        Scenario Based Test

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Document Services RTYPE: VND.LI.L00

File AR.01.02.06

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**Southern Nuclear Operating Company**  
**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**ND-16-0448**

**Enclosure**

**Scenario Based Test**

**(This Enclosure consists of 3 pages, including this cover page)**

## **Background**

On Tuesday, March 15, 2016, during the NRC Licensing Examination Preparation Week, an error in a simulator scenario manifested itself when the scenario ran longer than the time frame validated during the Scenario Based Test (SBT).

SNC's investigation determined that a simulator command script trigger for this operating exam scenario drove the simulator to a limit of simulation. A command script trigger is a tool an exam team inserts into an operating scenario execution file as part of the development of the scenario. At some point, this part of the command script actuates automatically (e.g., turns on or turns off a pump) during the course of the scenario. In this particular scenario, a trigger was inadvertently inserted into the exam execution file by the examination development team. During the final validation portion of the SBT process, this trigger was not identified because its impact fell outside the validation time frame. Even though the trigger impacted the completion of the scenario, the simulator responded as expected. Additionally, scenarios often run longer than the validated time during Preparation Week in order to give examiners time to fully evaluate plant parameters and critical decision points.

SNC's concern is that this condition has the potential to affect a subsequent operating test. SNC entered this issue into its corrective action program (CR# 10197389). SNC has evaluated what determines the length to which an SBT is conducted. The SBT process demonstrates, with reasonable assurance, that simulator performance will allow an operating crew to complete a given set of scenario objectives and achieve an acceptable scenario termination point within the validation time frame.

## **Current SNC SBT Methodology**

SBT methodology consists of parallel testing and evaluation of simulator performance while instructors validate simulator scenarios. As instructors validate satisfactory completion of training or evaluation objectives, procedure steps and scenario content, they are also ensuring satisfactory simulator performance in parallel, not series, making the process an "online" method of evaluating simulator performance. Proper conduct of the SBT methodology is intended to alleviate the need for post-scenario evaluation of simulator performance since the performance of the simulator is being evaluated during the parallel conduct of SBT and scenario validation.

NEI 09-09, Rev. 1, "Nuclear Power Plant-Referenced Simulator Scenario Based Testing Methodology," section 3.5, states that "scenarios should be run in real time, to the extent necessary, to ensure the completion of the objectives and termination point." Section 3.10 states that "the simulator shall be capable of being used to satisfy predetermined training or evaluation objectives without exceptions, significant performance discrepancies, or deviation from the approved scenario sequence."

NUREG 1021, Rev. 10, "Operator Licensing Examination Standards for Power Reactors," Appendix D, Section C.2.h, states that "a scenario should be designed to run approximately 60-90 minutes." Section ES-301, "Preparing Initial Operating Tests," provides direction for preparing an initial operating test. Utilizing this methodology, a minimally competent crew can be expected to successfully complete the objectives of a scenario in a bounded time with no simulator induced anomalies for the duration of a scenario.

SNC's exam team creates a scenario outline using Form ES-D-1, "Scenario Outline," of the NUREG. The scenario initial conditions, termination criteria, critical tasks, and events are developed at this time. Scenario command script triggers and the execution file are developed during this portion of the process. A minimum of two separate validations are required to be performed to ensure the scenario flow path performs as expected. The scenario is modified after the validations as necessary. During development of Form ES-D-2, "Required Operator Actions," the exact step details, sequence, and potential flow paths are documented. The final product is a scenario guide and its associated execution file. At this point, the scenario is ready for SBT.

During SBT, simulator parameter response is continually monitored to ensure that the scenario objectives can be achieved without deviation from the scenario or plant procedures and without violation of physical laws. An affirmation of simulator performance is documented through completion of an SBT completion checklist. SBT is a real-time evaluation process of each scenario as it is run. Prior to running the scenario, a pre-defined set of key parameters needed for a full understanding and explanation of plant response is loaded for recording simulator performance.

Scenarios are run in real time to ensure the achievement of the objectives and termination point. Execution of each procedure described in the scenario is achieved during SBT. Plant parameters, alarms, and automatic actions are monitored in real time to ensure the expected response is achieved. The SBT crew verifies parameters, alarms, and automatic actions directly related to a scenario event, a malfunction, and/or operator input.

Observable changes in key parameters are verified to correspond in trend and direction to those expected. The response of the simulator resulting from operator action, no operator action, improper operator action, automatic controls, and inherent operating characteristics are verified to be realistic. The simulator is verified to be capable of being used to satisfy predetermined scenario objectives without exceptions, significant performance discrepancies, or deviation from the approved scenario sequence.

### **Commitment**

SNC makes the following commitments:

1. Scenario Based Testing (SBT) run-time will be adjusted as follows:
  - a. The longest scenario validation time will be used as the baseline run-time.
  - b. SBT will be run for twice the validation time or 3 hours, whichever is longer.
  - c. Any scenario that exceeds the validation time after it has been validated, as described above, will be deemed invalid.
2. SNC commits to NEI 09-09, "Nuclear Power Plant-Referenced Simulator Scenario Based Testing Methodology," Rev. 1.
3. SNC will communicate final SBT run-times to the NRC Region II Operator Licensing Branch prior to the NRC examination preparation week.

SNC will discontinue this modified process (items 1, 2, and 3 above) upon declaration of its simulation facility as a plant-referenced simulator as defined by 10 CFR 55.46(c).

## **Email Concurrences for ND-16-0448**