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Docket Nos.: 52-025  
52-026

ND-10-1501

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application  
Supplemental Response to Request for Additional Information Letter No. 057

Ladies and Gentlemen:

By letter dated March 28, 2008, Southern Nuclear Operating Company (SNC) submitted an application for combined licenses (COLs) for proposed Vogtle Electric Generating Plant (VEGP) Units 3 and 4 to the U.S. Nuclear Regulatory Commission (NRC) for two Westinghouse AP1000 reactor plants, in accordance with 10 CFR Part 52. During the NRC's detailed review of this application, the NRC identified a need for additional information, involving the initial testing of the pressurizer surge line piping. By letter dated May 18, 2010, the NRC provided SNC with Request for Additional Information (RAI) letter No. 057 concerning this information need. SNC responded to this information need in letter ND-10-1263, dated July 2, 2010. However, in a subsequent teleconference call with the NRC regarding SNC's response to this RAI letter, SNC agreed to supplement their response with additional information. The enclosure to this letter provides supplemental information related to the SNC response to this request.

This letter identifies changes that will be made to a future revision of the VEGP Units 3 and 4 combined license application (COLA).

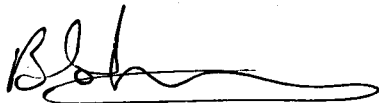
If you have any questions regarding this letter, please contact Mr. Wes Sparkman at (205) 992-5061 or Ms. Amy Aughtman at (205) 992-5805.

DO92  
NRC

Mr. B. L. Ivey states he is a Vice President 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,

SOUTHERN NUCLEAR OPERATING COMPANY



B. L. Ivey

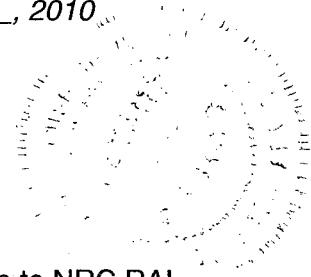
Sworn to and subscribed before me this 6<sup>th</sup> day of August, 2010

Notary Public: Nancy Louise Henderson

My commission expires: March 23, 2014

BLI/BJS

Enclosure: VEGP Units 3 and 4 COL Application - Supplemental Response to NRC RAI  
Letter No. 057 Involving Pressurizer Surge Line Monitoring



cc: Southern Nuclear Operating Company

Mr. J. H. Miller, III, President and CEO (w/o enclosure)  
Mr. J. A. Miller, Executive Vice President, Nuclear Development (w/o enclosure)  
Mr. J. T. Gasser, Executive Vice President, Nuclear Operations (w/o enclosure)  
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Mr. T. E. Tynan, Vice President - Vogtle (w/o enclosure)  
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File AR.01.02.06

Nuclear Regulatory Commission

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Mr. T. Beville, DOE/PM

**Southern Nuclear Operating Company**

**ND-10-1501**

**Enclosure**

**VEGP Units 3 and 4 COL Application –  
Supplemental Response to NRC RAI Letter No. 057  
Involving  
Pressurizer Surge Line Monitoring**

**NuStart Qb Tracking No. 4192**

**NRC eRAI No. 4642**

**VEGP RAI 03.12-02**

In STD COL 3.9-5, the applicant addresses Surge Line Thermal Monitoring of the first AP1000 plant. The monitoring will occur during the hot functional testing and the first fuel cycle and will include recording temperature distributions and thermal displacements of the surge line piping as well as pertinent plant parameters. The resulting monitoring data will be evaluated to verify that the pressurizer surge line is within the bounds of the analytical temperature distributions and displacements from the piping analysis. The staff requests the applicant provide additional information including a test abstract including stating the standard operating conditions in Chapter 14 that identifies the Objective, Prerequisites, Test Method, Data Required, and Acceptance Criteria for Surge Line Thermal Monitoring that complies with NRC Bulletin 88-11. For Subsequent SCOLs, the design is such that assumptions are made that the layout will be the same such that monitoring of the follow-on plants is not required. However, all plants are required to comply with NRC Bulletin 88-11. Given that the heatup and cooldown procedures have not been developed and the affect on the plant, even with similar layout, will be different depending on the procedures used, subsequent plants will need to verify that they will be using the same heatup and cooldown procedures as the monitored plant to comply with NRC Bulletin 88-11.

**Response:**

A test abstract will be included in the FSAR Section 14.2 to identify the standard operating conditions including the Objective, Prerequisites, Test Method, Data Required, and Acceptance Criteria for Surge Line Thermal Monitoring instrumentation verification and data gathering that complies with NRC Bulletin 88-11. The test abstract shown below will be included in a future revision to the COL application. This test abstract supplements the information already included in DCD Subsections 3.9.3, 14.2.5, and 14.2.9.1.7 item (d).

For the AP1000, it is indeed the assumption that the layout will be the same for the subsequent COL plants, particularly with regard to parameters important to piping analysis. There are ITAAC to confirm the piping is in conformance with the piping analysis. Similarly, for AP1000, as indicated in DCD Section 13.5, the heatup and cooldown procedures are to be developed by Westinghouse for the COLs, and will therefore be consistent with regard to design features and operational criteria. The FSAR Section 3.9 changes identified below address the consistency of the S-COL initial plant procedures with the "first-plant" procedures, and continued conformance with NRC Bulletin 88-11.

A monitoring program will be implemented as discussed in Subsection 3.9.8.5 for the first AP1000 to record temperature distributions and thermal displacements of the surge line piping, as well as pertinent plant parameters such as pressurizer temperature and level, hot leg temperature, and reactor coolant pump status. Monitoring will be performed during hot functional testing and during the first fuel cycle. The resulting monitoring data will be evaluated to show that it is within the bounds of the analytical temperature distributions and displacements.

This response is expected to be STANDARD for each S-COLA.

**Associated VEGP COL Application Revisions:**

1. COLA Part 2, FSAR Chapter 1, Table 1.9-204, will be revised to include a new line item, to read:

88-11	Pressurizer Surge Line	3.9.3.1.2
	Thermal Stratification	

2. COLA Part 2, FSAR Chapter 3, Subsection 3.9.3.1.2, will be revised under the heading of General, from:

The pressurizer surge line is monitored at the first AP1000 plant to record temperature distributions and thermal displacements of the surge line piping, as well as pertinent plant parameters. This monitoring occurs during the hot functional testing and first fuel cycle. The resulting monitoring data is evaluated to verify that the pressurizer surge line is within the bounds of the analytical temperature distributions and displacements. The pressurizer surge line monitoring activities include the following methodology and requirements:

**To read:**

The pressurizer surge line is monitored at the first AP1000 plant to record temperature distributions and thermal displacements of the surge line piping, as well as pertinent plant parameters. This monitoring occurs during the hot functional testing and first fuel cycle. The resulting monitoring data is evaluated to verify that the pressurizer surge line is within the bounds of the analytical temperature distributions and displacements.

Subsequent AP1000 plants (after the first AP1000 plant) confirm that the heatup and cooldown procedures are consistent with the pertinent attributes of the first AP1000 plant surge line monitoring. In addition, changes to the heatup and cooldown procedures consider the potential impact on stress and fatigue analyses consistent with the concerns of NRC Bulletin 88-11.

The pressurizer surge line monitoring activities include the following methodology and requirements:

3. COLA Part 2, FSAR Chapter 3, Subsection 3.9.8.5, will be revised from:  
This COL item is addressed in Subsection 3.9.3.1.2.

**To read:**

This COL item is addressed in Subsection 3.9.3.1.2 and Subsection 14.2.9.2.22.

4. COLA Part 2, FSAR Chapter 14, new Subsection 14.2.9.2.22, will be added to read (with an LMA of STD COL 3.9-5):

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14.2.9.2.22 Pressurizer Surge Line Testing (First Plant Only)

**Purpose**

The purpose of the pressurizer surge line testing is: a) to obtain data to verify the proper operation of temperature sensors installed on the pressurizer surge line and pressurizer spray line, and b) to obtain Reactor Coolant System piping displacement measurements for baseline data, as described in DCD subsections 3.9.3, 14.2.5, and 14.2.9.1.7 item (d).

**Prerequisites**

The construction tests for the individual components associated with the Reactor Coolant System have been completed. The testing and calibration of the required test instrumentation has been completed. The temporary sensors and instrumentation lead wires required for monitoring thermal stratification, cycling, and striping have been installed. The calibration of the transducers and the operability of the data acquisition equipment have been verified. Prior to testing of the piping system, a pretest walk-down shall be performed to verify that the anticipated piping movement is not obstructed by objects not designed to restrain the motion of the system (including instrumentation and branch lines). The system walk-down shall also verify that supports are set in accordance with the design.

**General Test Methods and Acceptance Criteria**

The performance of the Reactor Coolant System is observed and recorded during a series of individual tests that characterize the various modes of system operation. This testing verifies that the temperature sensors operate as described in DCD subsection 3.9.3 and in appropriate design specifications.

- a) Verify the proper operation of temperature sensors installed on pressurizer surge line and pressurizer spray line.
  - b) Record sensor data at specified intervals throughout hot functional testing of the RCS system, including during the drawing and collapsing of the bubble in the pressurizer.
  - c) Retain the following plant parameters time history for the same data recording period:
    - Hot leg temperature
    - Reactor Coolant System pressure
    - Reactor coolant pump status
    - Pressurizer level
    - Pressurizer temperature (liquid and steam)
    - Pressurizer spray temperature
    - Pressurizer spray and auxiliary spray flow
    - Normal residual heat removal system flow rate
    - Passive core cooling system – passive residual heat removal flow rate.
  - d) Monitor pressurizer surge line and pressurizer spray line for valve leakage.
  - e) Remove the transducers and associated hardware after the completion of testing.
  - f) Proper operation of the temperature sensors in the pressurizer surge and spray lines is verified.
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5. COLA Part 2, FSAR Chapter 3, Subsection 3.9.3.1.2, will be revised under the heading of Locations to be Monitored, from:

In addition to the existing permanent plant temperature instrumentation, temperature and displacement monitoring will be included at critical locations on the surge line.

To read:

In addition to the existing permanent plant temperature instrumentation, temperature and displacement monitoring will be included at critical locations on the surge line. The additional locations utilized for monitoring during the hot functional testing and the first fuel cycle (see Subsection 14.2.9.2.22) are selected based on the capability to provide effective monitoring.