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SOUTHERN COMPANY

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U.S. Nuclear Regulatory Commission
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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application
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. The enclosure to this letter provides 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.

D092
NRO

Mr. Charles. R. Pierce states he is the AP1000 Licensing Manager 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

Charles R. Pierce

Charles R. Pierce

Sworn to and subscribed before me this 2nd *day of* July, *2010*

Notary Public: Dana M. Williams

My commission expires: 12/29/2010

CRP/WAS/dmw

Enclosure: Response to R-COLA RAI Letter No. 057

cc: Southern Nuclear Operating Company
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File AR.01.02.06

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Southern Nuclear Operating Company

ND-10-1263

Enclosure

Response to R-COLA RAI Letter No. 057

NuStart Qb Tracking No. 4131

NRC eRAI No. 4642

VEGP RAI 03.12-2

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.

SNC Response:

A test abstract will be included in 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 Thermal Stratification	3.9.3.1.2

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):

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 the 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.
