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Docket Nos.: 52-025  
52-026

ND-10-1423

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

Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application  
Response to Request for Additional Information Letter No. 060

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. During the NRC's detailed review of this application, the NRC identified a need for additional information, involving information related to the reactor coolant system (RCS) unidentified leakage inside containment. By letter dated July 8, 2010, the NRC provided SNC with Request for Additional Information (RAI) Letter No. 060 concerning this information need. That RAI letter contains two RAI questions, numbered 05.02.05-01 and 05.02.05-02. 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 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

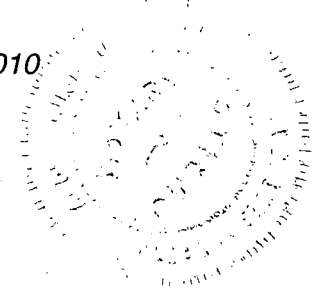


B. L. Ivey

Sworn to and subscribed before me this 5<sup>th</sup> day of August, 2010.

Notary Public: Nancy Louise Henderson

My commission expires: March 23, 2014



BLI/BJJS

Enclosure: VEGP Units 3 and 4 COL Application - Response to NRC RAI Letter No. 060  
Involving RCS Unidentified Leakage

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)  
Mr. D. H. Jones, Site Vice President, Vogtle 3 & 4 (w/o enclosure)  
Mr. T. E. Tynan, Vice President - Vogtle (w/o enclosure)  
Mr. M. K. Smith, Technical Support Director (w/o enclosure)  
Mr. D. M. Lloyd, Vogtle 3 & 4 Project Support Director (w/o enclosure)  
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Mr. M. J. Ajluni, Nuclear Licensing Manager  
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Document Services RTYPE: AR01.1053  
File AR.01.02.06

Nuclear Regulatory Commission

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Mr. R. H. Kitchen, PGN  
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Mr. T. Beville, DOE/PM

**Southern Nuclear Operating Company**

**ND-10-1423**

**Enclosure**

**VEGP Units 3 and 4 COL Application**

**Response to NRC RAI Letter No. 060**

**Involving RCS Unidentified Leakage**

**NuStart Qb Tracking No. 4173**

**NRC eRAI No. 4859**

**VEGP RAI 05.02.05-01**

The operating experiences at Davis Besse (NRC Bulletin 2002-01) indicated that prolonged low-level unidentified reactor coolant leakage inside containment could cause material degradation such that it could compromise the integrity of a system leading to the gross rupture of the reactor coolant pressure boundary. The question was raised regarding licensees' practices for identifying and resolving degradation of the reactor coolant pressure boundary. AP1000 DCD has not addressed this issue; however, addressing this operating experience issue requires development and implementation of procedures by COL applicants rather than by the design certification applicant.

Therefore, pursuant to 10 CFR Part 52.79 Item 37, "information necessary to demonstrate how operating experience insights have been incorporated into the plant design," the COL applicant is requested to provide operating procedures or, at a minimum, a commitment in the FSAR to develop such procedures and to provide a schedule for completion. The procedures will specify operator actions in response to prolonged low level unidentified reactor coolant leakage conditions that exist above normal leakage rates and below the Technical Specification (TS) limits to provide operators sufficient time to take action before the TS limit is reached. The procedures would include identifying, monitoring, trending, and redressing prolonged low-level leakage.

The guidance about developing such procedures for ensuring effective management of leakage, including low-level leakage, is available in Regulatory Guide 1.45, Revision 1 (dated May 2008), "Guidance on Monitoring and Response to Reactor Coolant System Leakage," Regulatory Position C3, "Operations-Related Positions." In the FSAR, the applicant is requested to clarify whether it will commit to the above procedure guidance, or a proposed alternative. If it is an alternative, the applicant should provide its description.

**SNC Response:**

The above request was also transmitted to Westinghouse in NRC RAI No. RAI-DCP-CN45-SBP-01. The Westinghouse response to that RAI in letter DCP\_NRC\_002983, dated July 29, 2010, created a new COL Information Item for the COL applicant to provide the requested information. Therefore, information to address new COL Information Item 5.2-3 related to the "response to unidentified reactor coolant system leakage inside containment" will be provided in the VEGP Units 3 and 4 COL Application Final Safety Analysis Report (FSAR) to identify that operating procedures specify operator actions in response to prolonged low level unidentified reactor coolant leakage conditions that exist above normal leakage rates and below the Technical Specification (TS) limits to provide operators sufficient time to take action before the TS limit is reached. The FSAR will also indicate that the procedures include identifying, monitoring, trending, and redressing prolonged low level leakage. The procedures for effective management of leakage, including low level leakage, will be developed using the guidance in Regulatory Guide 1.45, Revision 1 (dated May 2008), "Guidance on Monitoring and Response to Reactor Coolant System Leakage," Regulatory Position C3, "Operations-Related Positions." The text from this position will be included in the FSAR as identified in the COL Application Revision section below. These procedures will be available prior to fuel load.

The VEGP Units 3 and 4 FSAR will be revised as shown in the COL Application Revisions section below to address this new item. These changes will be incorporated in a future revision of the COL application.

This response is expected to be STANDARD for the S-COLAs.

**Associated VEGP COL Application Revisions:**

1. COLA Part 2, FSAR Chapter 1, Table 1.8-202, will be revised to add a new COL information item to read:

5.2-3	Response to Unidentified Reactor Coolant System Leakage Inside Containment	5.2.6.3	5.2.6.3 5.2.5.3.5	A
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2. COLA Part 2, FSAR Chapter 5, will be revised to add a new Subsection 5.2.5.3.5 (with an LMA of STD COL 5.2-3) to read:

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Add the following new subsection following DCD Subsection 5.2.5.3.4.

5.2.5.3.5 Response to Reactor Coolant System Leakage

Operating procedures specify operator actions in response to prolonged low level unidentified reactor coolant leakage conditions that exist above normal leakage rates and below the Technical Specification (TS) limits to provide operators sufficient time to take action before the TS limit is reached. The procedures include identifying, monitoring, trending, and addressing prolonged low level leakage. The procedures for effective management of leakage, including low level leakage, are developed including the following operations related activities:

- Trends in the unidentified leakage rates are periodically analyzed. When the leakage rate increases noticeably from the baseline leakage rate, the safety significance of the leak is evaluated. The rate of increase in the leakage is determined to verify that plant actions can be taken before the plant exceeds TS limits.
- Procedures are established for responding to leakage. These procedures address the following considerations to prevent adverse safety consequence results from the leakage:
  - Plant procedures specify operator actions in response to leakage rates less than the limits set forth in the Technical Specifications. The procedures include actions for confirming the existence of a leak, identifying its source, increasing the frequency of monitoring, verifying the leakage rate (through a water inventory balance), responding to trends in the leakage rate, performing a walkdown outside containment, planning a containment entry, adjusting alarm setpoints, limiting the amount of time that operation is permitted when the sources of the leakage are unknown, and determining the safety significance of the leakage.
  - Plant procedures specify the amount of time the leakage detection and monitoring instruments (other than those required by Technical Specifications) may be out of service to effectively monitor the leakage rate during plant operation (i.e., hot shutdown, hot standby, startup, transients, and power operation).
- The output and alarms from leakage monitoring systems are provided in the main control room. Procedures are readily available to the operators for converting the instrument output to a common leakage rate. (Alternatively, these procedures may be part of a computer program so that the operators have a real-time indication of the leakage rate as determined from the output of these monitors.) Periodic calibration and testing of leakage monitoring systems are conducted. The alarm(s), and associated setpoint(s), provide operators an early warning signal so that they can take corrective actions, as discussed above, i.e., before the plant exceeds TS limits.
- During maintenance and refueling outages, actions are taken to identify the source of any unidentified leakage that was detected during plant operation. In addition, corrective action is taken to eliminate the condition resulting in the leakage.

The procedures described above will be available prior to fuel load.  
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3. COLA Part 2, FSAR Chapter 5, will be revised to add a new Subsection 5.2.6.3 (with an LMA of STD COL 5.2-3) to read:

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5.2.6.3 Response to Unidentified Reactor Coolant System Leakage Inside Containment  
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This COL item is addressed in Subsection 5.2.5.3.5.  
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**NuStart Qb Tracking No. 4174**

**NRC eRAI No. 4859**

**VEGP RAI 05.02.05-02**

In order to support the procedures described in RAI Question 05.02.05-1, the applicant is requested to define the alarm setpoints and demonstrate that the setpoints are sufficiently low to provide an early warning for operator actions prior to Technical Specification limits. In addition, the applicant is requested to provide procedures for converting the instrument output to a common leakage rate.

**Response:**

As indicated in the response to RAI 05.02.05-01, alarm setpoints will be defined and demonstrated to be sufficiently low to provide an early warning for operator actions prior to Technical Specification limits. In addition, procedures will be developed for converting the instrument output to a common leakage rate.

The changes identified in the COL Application Revisions section for RAI 05.02.05-01 address these items and will be included in a future COLA revision.

This response is expected to be STANDARD for the S-COLAs.

**Associated VEGP COL Application Revisions:**

Associated changes identified in response to RAI 05-02-05-01.