



February 18, 2009  
NND-09-0028

U.S. Nuclear Regulatory Commission  
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Subject: Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 Combined License Application (COLA) - Docket Numbers 52-027 and 52-028 Response to NRC Request for Additional Information (RAI) Letter No. 029

Reference: Letter from Sujata Goetz (NRC) to Alfred M. Paglia (SCE&G), Request for Additional Information Letter No. 029 Related to SRP Section 10.04.05 for the Virgil C. Summer Nuclear Station Units 2 and 3 Combined License Application, dated February 6, 2009.

The enclosure to this letter provides the South Carolina Electric & Gas Company (SCE&G) response to the RAI items included in the above referenced letter. The enclosure also identifies any associated changes that will be incorporated in a future revision of the VCSNS Units 2 and 3 COLA.

Should you have any questions, please contact Mr. Al Paglia by telephone at (803) 345-4191, or by email at [apaglia@scana.com](mailto:apaglia@scana.com).

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 18<sup>th</sup> day of February, 2009.

Sincerely,

Ronald B. Clary  
General Manager  
New Nuclear Deployment

AMM/RBC/am

Enclosure

DOB3  
LRO

c (with attachment):

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Ravindra G. Joshi  
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John Zieler  
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**NRC RAI Letter No. 029 Dated February 6, 2009**

**SRP Section: 10.04.05 – Circulating Water System**

Question from Balance of Plant Branch 2 (ESBWR/ABWR) (SBPB)

**NRC RAI Number: 10.04.05-1**

In the Summer combined license (COL) application, Final Safety Analysis Report (FSAR) Section 10.4.5.2.3, "System Operation" the applicant provided conceptual design information regarding its circulating water system (CWS) major components, including its cooling towers. With respect to the location of the cooling tower, the applicant stated that the cooling towers are located to prevent adverse interactions with structures, systems, and components (SSCs) required for safe shutdown of the plant in case of collapse of the towers or failure of their basins and flumes. However, the staff could not find further details on how the cooling tower failure will have no effect on the nearby safety related, system, equipment and/or structure of the plant. As described in the Standard Review Plan (SRP), Section 10.4.5, "Circulating Water System," SRP Acceptance Criteria, the requirements of General Design Criteria 4 (GDC 4) are met when the CWS design includes provisions to accommodate the effects of discharging water that may result from a failure of a component or piping in the CWS. Therefore, in order to meet this GDC 4 criteria and for the NRC staff to complete its evaluation of the Summer CWS, the staff requests the applicant to provide additional information in the FSAR to ensure that failure of the tower will not affect the safety-related systems or equipment that are located in the proximity of the cooling tower.

**VCSNS RESPONSE:**

The circulating water system (CWS) cooling towers for Units 2 and 3 are mechanical induced draft towers which are approximately 70 – 75 feet in height. The shortest distance between a safety-related structure and a Circulating Water System (CWS) cooling tower is greater than 600 feet (Unit 2 Auxiliary Building located west-northwest of the northernmost Unit 2 CWS cooling tower) (FSAR Figure 1.1-202). The site is graded to direct surface water away from the VCSNS Units 2 and 3 nuclear islands (conceptual site drainage and flow paths are shown in FSAR Figure 2.4-210). The site grading, in combination with the distance separating the CWS cooling towers from safety-related structures, therefore prevents adverse effects on safety-related SSCs from failure of the CWS cooling towers. Site grading also prevents water from a failure of the circulating water piping associated with the CWS cooling towers from adversely affecting safety-related SSCs. The consequences of a failure in the yard of circulating water piping is bounded by failure of the circulating water piping in the turbine building described in DCD subsections 3.4.1.1.1, 3.4.1.2.2.3 and 10.4.5.2.3.

This response is PLANT SPECIFIC.

**ASSOCIATED VCSNS COLA REVISIONS:**

As described below, COLA Part 2, FSAR Chapter 10, Subsection 10.4, will be updated in a future revision to the COLA to address flooding resulting from cooling tower failures.

Modify the last paragraph of subsection 10.4.5.2.3 as follows (this paragraph has a LMA of VCS CDI):

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VCS CDI

The cooling towers are located to prevent adverse interactions with structures, systems, and components (SSCs) required for safe shutdown of the plant in case of a collapse of the towers or failure of their basins and flumes. Failure of the cooling tower basins, flumes or associated circulating water system piping will not have an adverse effect on safety-related SSCs resulting from external flooding due to the location of the cooling towers (greater than 600 feet from safety-related SSCs) in combination with site grading to direct surface water away from the nuclear island.

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**ASSOCIATED ATTACHMENTS:**

None