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SCE&G®
A SCANA COMPANY

September 16, 2009
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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

ATTN: Document Control Desk

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.061

Reference: Letter from Tanya Simms (NRC) to Alfred M. Paglia (SCE&G), Request for Additional Information Letter No. 061 Related to SRP Section 9.2.1 for the Virgil C. Summer Nuclear Station Units 2 and 3 Combined License Application, dated August 17, 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.

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

Executed on this 16 day of SEPTEMBER, 2009.

Sincerely,

for RB CLARY

Ronald B. Clary
Vice President
New Nuclear Deployment

JCL/RBC/jg

Enclosure

D083
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NRC RAI Letter No. 061 Dated August 17, 2009

SRP Section: 9.2.1 – Station Service Water System

QUESTIONS from Balance of Plant Branch 1 (SBPA)

NRC RAI Number: 09.02.01-6

The raw water system (RWS) is relied upon for achieving and maintaining cold shutdown conditions which is necessary for satisfying Technical Specification requirements. In accordance with NRC policy considerations for passive plant designs, non-safety related active systems that are relied upon for achieving and maintaining cold shutdown conditions (i.e., transitioning from Mode 4 to Mode 5) should be highly reliable and able to accommodate single active failures without a loss of the cooldown capability that is needed. The staff found that Section 9.2.11 of the Final Safety Analysis Report (FSAR) does not provide a clearly defined design basis with respect to the RWS cooldown function, and the reliability and capability of the RWS to perform this function for the most limiting situations were not adequately described and addressed. For example, the minimum RWS flow rate, water inventory, temperature limitations, and corresponding bases for providing SWS makeup for the two V.C. Summer units were not described. Also, the suitability of RWS materials for the plant-specific application and measures being implemented to resolve vulnerabilities and degradation mechanisms to assure RWS functionality over time were not addressed. Consequently, Section 9.2.11 of the FSAR needs to be revised to properly describe and address the RWS design bases in this regard and to include design specifications that are necessary to ensure the reliability and capability of the RWS to perform its cooldown function.

The applicant's response dated March 4, 2009 provided adequate details for most of the RAI 09.02.01-2 and RAI 09.02.01-4. A complete description is not provided to demonstrate that the RWS is designed to be a highly reliable and robust system capable of operating during a loss of normal ac power to provide RWS makeup flow under normal and abnormal conditions for support of cold shutdown conditions for up to seven (7) days. The staff requests clarification on the following items;

- The service water system (SWS) normal water makeup is from the water treatment (Figure 9.2-201) which is shown as a "black box" on the drawing. The staff needs additional details related to what is inside the "black box". Specifically, major equipment such as tanks, strainers and screens, pumps, piping arrangement and flow distribution need to be shown in FSAR Figure 9.2-201 and described in FSAR Section 9.2.11.

- The staff could not determine if the flooding discussion in the RAI response includes the Ancillary RWS and water treatment facility; reference GDCs 2 and 4. This should be clarified.

VCSNS RESPONSE:

The "black box" is an offsite water treatment facility that will provide for pretreated (filtered) and domestic (drinking) water. The offsite water treatment facility could be considered to be equivalent to a municipal water supply. For information purposes only, the location of the off-site water treatment facility is shown on FSAR Figure 1.1-202, "VCSNS Site Plan." The facility is schematically depicted on FSAR Figure 9.2-201, "Raw Water System Flow Diagram." FSAR Figure 1.1-202 will be revised in a future COLA update as indicated below in the Associated VCSNS COLA Revisions section to indicate that the offsite water treatment facility is not within the scope of the COLA. Portions of the Raw Water System (RWS) referred to as "ancillary RWS" are normally supplied with filtered water from the offsite water treatment facility. The makeup supply to Service Water System (SWS) is normally from this filtered water source. Provisions are made in RWS to supply SWS makeup from the raw water system pumps without reliance on the offsite water treatment facility as described in Note 2 of FSAR Figure 9.2-201.

The response to RAI 09.02.01-2 does apply to the ancillary raw water system. Portions of RWS referred to as "ancillary RWS", such as the makeup for SWS, Fire Protection System (FPS) and Demineralized Water Treatment System (DTS) are those normally supplied with filtered water from the offsite water treatment facility. The offsite water treatment facility does not present flooding concerns for Units 2 and 3. This facility is located greater than a mile away from the Units 2 and 3, and based on site drainage characteristics, flooding is not a concern.

ASSOCIATED VCSNS COLA REVISIONS:

Figure 1.1-202 will be revised in a future revision of the FSAR to add the following note:

"The Offsite Water Treatment Facility is not within the scope of the COLA."

ASSOCIATED ATTACHMENTS:

None

NRC RAI Letter No. 061 Dated August 17, 2009

SRP Section: 9.2.1 – Station Service Water System

QUESTIONS from Balance of Plant Branch 1 (SBPA)

NRC RAI Number: 09.02.01-7

The applicant's response dated March 4, 2009 provided adequate detail for most of RAI 09.02.01-3. A complete description is not provided to demonstrate that the RWS is designed to be a highly reliable and robust system capable of operating during a loss of normal ac power to provide RWS makeup flow under normal and abnormal conditions for support of cold shutdown conditions for up to seven (7) days. The staff requests the following items;

1) The Ancillary RWS system is mentioned once in the above noted RAI responses and provided FSAR markup, but no drawings or detailed text are described in the FSAR. More details concerning the Ancillary RWS need to be provided in the FSAR.
2) In FSAR Section 14.2.9.4.24, "Raw Water System," testing does not included the water treatment facility or Ancillary RWS which is the primary water supply to the SWS cooling towers. Provide a description of the type of testing planned for the water treatment facility.
3) The RAI response stated that the RWS piping and structures are designed and constructed in accordance with nationally recognized codes and standards (such as ASME B31.1, AWWA and IBC). The COL FSAR, however, did not include any recognized codes and standards such as ASME B31.1, "Power Piping," for the RWS including underground piping. The COL FSAR needs to contain such standards.

VCSNS RESPONSE:

1) The ancillary raw water system is that portion of RWS which is normally supplied with filtered water from an offsite water treatment facility. The ancillary raw water system loads are each under 1,000 gpm with piping sized accordingly. The portion of RWS referred to as "ancillary RWS" consist only of piping to supply water from the offsite facility to various site and AP1000 loads as shown on VCSNS FSAR Figure 9.2-201.

2) The offsite water treatment facility could be considered to be equivalent to a municipal water supply. Makeup to SWS can also be provided from the raw water pumps without reliance on the offsite water treatment facility. DCD Section 14.2.9.2.6 "Service Water System Testing" includes testing of the SWS cooling tower water level and controls. The SWS testing will verify the capability of the level control system, and thus the availability of water from the RWS. Therefore no

additional testing is required to be described beyond what is currently provided in the AP1000 DCD and VCSNS Units 2 and 3 FSAR.

3) DCD Table 3.2-3 (sheet 30 of 65) indicates that RWS is a safety Class E system. DCD Subsection 3.2.2.7 indicates that Class E is used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification. Accordingly, it is consistent to not include the standards used for RWS design and construction within the scope of the FSAR.

ASSOCIATED VCSNS COLA REVISIONS:

No COLA revisions have been identified as a result of this response.

ASSOCIATED ATTACHMENTS:

None

NRC RAI Letter No. 061 Dated August 17, 2009

SRP Section: 9.2.1 – Station Service Water System

QUESTIONS from Balance of Plant Branch 1 (SBPA)

NRC RAI Number: 09.02.01-8

The applicant's response dated March 4, 2009 provided adequate detail for most of RAI 09.02.01-5. However, a complete description is not provided to demonstrate that the RWS is designed to be a highly reliable and robust system capable of operating during a loss of normal ac power to provide RWS makeup flow under normal and abnormal conditions for support of cold shutdown conditions for up to seven (7) days. The staff requests the following:

- A complete description is not provided for backup electrical power to the water treatment facility and screenwash and travelling screens to demonstrate that the RWS is highly reliable. Please provide this description. In addition, provide a detailed description on the effects of the water treatment facility during a loss of offsite power (LOOP).

VCSNS RESPONSE:

The offsite water treatment facility is not being designed to function in a LOOP. The portion of RWS that supplies the circulating water cooling towers can also supply SWS cooling towers as shown on VCSNS Units 2 and 3 FSAR Figure 9.2-201, "Raw Water System Flow Diagram". Two of the raw water pumps are provided with diesel backed power as stated in VCSNS FSAR Subsection 9.2.11.3. The pump discharge valve will be powered from the same source as the pump. SWS cooling tower level can be manually controlled independent of instrument air or electric power. No additional powered components are necessary to provide RWS to SWS for cooling tower makeup.

Operating experience with the existing VCSNS Unit 1 circulating water intake (also located on Monticello Reservoir) has shown trash, grass, debris, etc. not to be a concern. Final design of the screens and trash racks has not been completed but they will be in compliance with the Clean Water Act. Each of the three raw water intakes are designed for supplying half of the makeup required for the circulating water cooling towers and have the through-trash-rack and through-screen-mesh velocity less than 0.5 feet per second at a minimum reservoir water level. The SWS makeup requirements are less than ten percent of the RWS design flow rate. These extremely low velocities (less than 0.05 feet per second) would not draw and retain trash on the screens and trash racks. However, traveling screens and screen wash equipment are supplied from an associated diesel-backed bus even though not required for SWS cooling tower makeup.

ASSOCIATED VCSNS COLA REVISIONS:

No COLA revisions have been identified as a result of this response.

ASSOCIATED ATTACHMENTS:

None