August 18, 2003

LICENSEE: South Carolina Electric and Gas Company

FACILITY: V. C. Summer Nuclear Station

SUBJECT: SUMMARY OF TELECOMMUNICATION (TELECON) WITH SOUTH CAROLINA ELECTRIC AND GAS (SCE&G) COMPANY REPRESENTATIVES TO DISCUSS APPLICANT'S RESPONSES TO VARIOUS STAFF REQUESTS FOR ADDITIONAL INFORMATION (RAIs) - LICENSE RENEWAL APPLICATION (LRA) FOR THE V.C. SUMMER NUCLEAR STATION (VCSNS)

During the conference calls on May 27, June 26, and August 7, 2003, the NRC staff (the staff) and representatives from VCSNS (the applicant) discussed several RAI's related to LRA Sections 2.5, 3.4, 3.5, and 4.4. These discussions related to additional clarifications that the staff needed to complete their safety review of the VCSNS application. A list of telecon participants is enclosed (see Enclosure 1). The following is a summary of the discussions:

RAI 3.4-4

The current RAI response states that "prior to the period of extended operation, a one-time inspection will be conducted in low flow areas of various treated water systems to demonstrate the effectiveness of the Chemistry program for various material/environment combinations." During the telecon, the applicant proposed to submit additional details of their one-time inspection program such as: (1) the one-time inspection will be included in the Chemistry program (it will not be a stand alone program) and, (2) describe that a one-time inspection will be performed by engineering evaluation and not by using American Society of Mechanical Engineers (ASME) techniques. The applicant's program should include that a one-time inspection is performed at low flow areas based on severity of conditions, time of service, and lowest design margin as defined in the Generic Aging Lessons Learned (GALL) report, NUREG-1801.

RAIs 3.4-7 & 3.4-11

For the heat exchangers and cooler in a lube oil environment, the applicant proposed to describe that the lube oil is regularly maintained by non-GALL report programs. To verify the effectiveness of these lube oil maintenance programs, the applicant proposed to analyze oil samples under a GALL credited program for the turbine driven feedwater pump oil cooler LRA Table 3.4-1, item 4. This would also be needed for the heat exchanger tubes identified in LRA Table 3.4-2, item 3.

RAI 3.4-13

The applicant would review the staff concern with corrosion on the bottom external surface of a condensate storage tank and submit any additional information to substantiate the original response to RAI 3.4-13.

RAI 3.5-2, part (c)

The staff considers groundwater to be aggressive if pH < 5.5. What is the applicant evaluation for its groundwater?

RAI 3.5-9, part (e)

The applicant needs to clarify the statement "However, SCC and crevice corrosion are monitored from a mechanical perspective, with details in Application Sections B.2.1 and B.2.11." What is the relevance to tank inspection? Stainless steel tanks? Interior surface? Exterior surface?

RAIs 3.5-19, 3.5-23, 3.5-24, 3.5-25

Final Safety Analysis Report (FSAR) Supplement issues. The applicant should expand the summary description of Aging Management Programs (AMP) in the FSAR Chapter 18 to include information from Appendix B of the LRA as indicated in NUREG-1800.

RAI 3.5-21

The use of IWF as an aging management program to detect Stress Corrosion Cracking (SCC) of high strength bolting used in supports is not consistent with GALL. The applicant has not fully discussed the plant-specific resolution of the generic safety issue in its response. If SCC is not an applicable aging effect, a specific technical basis taken from EPRI Report NP-5769, as modified by the staff's NUREG that closed the generic issue, should be discussed.

RAI 3.5-24, part (c)

The staff does not understand the intent of statements made in LRA Section B.1.20 under "Parameters Monitored or Inspected" relative to "excessive wear" being credited for license renewal. The applicant agreed to provide additional clarification of these statements.

RAI 3.5-9, Part (a)

The staff asked the applicant to describe how the design basis for the flat plate containment penetration closures considered cyclic loading due to temperature/pressure transient. If a Current Licensing Basis (CLB) fatigue analysis exists for the flat plate penetration closures, has it been updated for a 60-year operating life? How will cracking due to cyclic loading be managed for the period of extended operation?

RAI 4.4.3

The LRA states that the guidance of Nuclear Energy Institute (NEI)-95-10 was utilized for passive screening. Guidance of NEI-95-10, Appendix B, for active/passive screening determinations of typical component commodity groups includes the following passive component commodity groups:

- Cables and Connections, Bus, electrical portions of Electrical and I&C Penetration Assemblies (e.g., electrical penetration assembly cables and connections, connectors, electrical splices, terminal blocks, power cables, control cables, instrument cables, insulated cables, communication cables, uninsulated ground conductors, transmission conductors, isolated-phase bus, nonsegregated-phase bus, segregated-phase bus, switchyard bus)

- Elements, RTDs, Sensors, Thermocouples, Transducers (e.g., conductivity elements, flow elements, temperature sensors, radiation sensors, watt transducers, thermocouples, RTDs, vibration probes, amp transducers, frequency transducers, power factor transducers, speed transducers, variable transducers, vibration transducers, voltage transducers)

- High-voltage Insulators (e.g., porcelain switchyard insulators, transmission line insulators)

The LRA states that the component commodity subgroup non-EQ electrical penetration assemblies are in scope, passive, long lived and thus subject to an Aging Management Review (AMR). This conveys that some portion of the cables and connections of electrical penetration assemblies are outside the scope of 50.49 Environmental Qualification (EQ) requirements e.g., the connections between the non-EQ cable and the EQ penetration are probably outside 50.49. The response to RAI 4.4.3 conveys for example that the interface connection between Non-EQ cable and the EQ electrical penetration has a qualified life pursuant to 50.49. Is this what was intended? Explain.

RAI 4.4-4

The information in the LRA conveys that plant design temperatures are used in EQ aging evaluations and that plant temperature data will be used only to demonstrate conservatism of plant design temperatures. Actual plant temperatures are not utilized in the aging evaluation and current conservatism between design and plant design temperatures which now exist and will continue to exist (will not change from the current level of conservatism) after the reanalysis for 60 years. Also, material activation energy values used in the original calculation will not be changed as part of a reanalysis for 60 years. Is this what was intended? Response to RAI 4.4-4 indicates that this is not what was intended.

RAI 2.5-4

The Generator and Main Transformer (EG) system as described in the FSAR includes lightning protection which includes the passive component commodity group of uninsulated ground conductors. Pursuant to 54.4(a)(2), expand the response to also explain why failure of lightning protection cannot prevent satisfactory accomplishment of any of the functions identified in paragraphs (a)(1) (i), (ii), or (iii) of 10 CFR 54.4.

RAI 4.4-2

Response RAI 4.4-2 uses the term “TLAA review” It is not clear what this term means. The word “review” in this term should be deleted from the response.

RAI 2.5-1

In addition to passive component commodity groups of uninsulated ground conductors, isolated-phase bus, nonsegregated-phase bus, and a segregated-phase bus identified in RAI 2.5-1. Appendix B of NEI 95-10 also identifies as passive Elements, RTDs, Sensors, Thermocouples, Transducers (e.g., conductivity elements, flow elements, temperature sensors, radiation sensors, watt transducers, thermocouples, RTDs, vibration probes, amp transducers, frequency transducers, power factor transducers, speed transducers, var. transducers, vibration transducers, voltage transducers). Expand the response to question 2.5-1 to explain why each of these passive components are not passive as stated in the NEI guidance or do not perform any intended functions pursuant to 10 CFR 54.4(a)(2).

RAI 2.5-1, relating to General Design Criterion (GDC) 3: GDC 3 states: "Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions." It is our understanding that GDC 3 would require that a cable tray system (i.e., an SSC important to safety) must be designed to minimize the probability of fires. To meet this design requirement in part, it is our understanding that uninsulated ground conductors are connected to the metal structural features of a cable tray system. The ground conductor provides a ground path for currents that can be magnetically induced by energized electrical circuits located in the cable tray and by transient conditions created during an electrical fault or lightning strike. The metal parts of the tray has no path for the current to go to ground create an electrical short circuit condition and heating of the metal structural features of a cable tray. The heating can cause a fire in the cable insulation located in the cable tray system. It is common industry practice to connect uninsulated ground conductors metal electrical enclosures to minimize the probability of these currents and fire. Explain why these uninsulated ground conductors are not part of Summer plant's CLB and not within the scope of license renewal.

RAI 2.5-1, relating to overcurrent protection in cases of cable tray separation, states: "...no uninsulated ground conductor failure would prevent satisfactory accomplishment of any of the safety-related functions of those overcurrent devices relied upon for cable protection. In addition, these overcurrent protective devices are periodically tested IAW electrical breaker surveillance testing requirements of VCSNS." Provide a circuit diagram which shows how overcurrent protection for cable functions. In addition, explain to what extent electrical breaker surveillance is utilized to detect failure of an uninsulated ground conductor.

For electrical system boundaries, the LRA includes the following:

> The offsite power grid boundary for the two preferred sources of offsite power are as follows:
>
> - For the 115 KV line the boundary is each of the two circuit switchers associated with the plant's Engineered Safety Features (ESF) Transformers.
>
> - For the 230 KV substation bus 1, the boundary is the 2000 amp power circuit breaker feeding the two Emergency Auxiliary Transformers.

Provide an electrical drawing showing these boundaries.

VCSNS has reviewed this telecon summary and did not provide any comments.

Rajender Auluck, Sr. Project Manager /RA/
License Renewal, Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-395

Enclosures: As stated

cc w/encls: See next page

VCSNS has reviewed this telecon summary and did not provide any comments.

Rajender Auluck, Sr. Project Manager /RA/
License Renewal, Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-395

Enclosures: As stated

cc w/encls: See next page

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May 27, June 26, and August 7, 2003

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Enclosure 1

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