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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
Documentation of Teleconference Between USNRC and VCSNS on August 07, 2007 and Requested Information

Reference:
1. Eugene F. Guthrie, NRC, Letter to Jeffrey B. Archie, "NRC INTEGRATED INSPECTION REPORT 05000395/2006005," dated January 25, 2007

2. Jeffrey B. Archie, SCE&G, Letter to U. S. Nuclear Regulatory Commission, Document Control Desk, "Response to NRC Generic Letter 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," dated September 1, 2005

On August 07, 2007 a telephone conference was held between the Nuclear Regulatory Commission (NRC) and South Carolina Electric & Gas Company (SCE&G) to discuss the impact of a postulated pressurizer surge line rupture on the Reactor Building sump strainers. As a result of the discussion, the VCSNS staff was requested to provide an overview of the ongoing Reactor Building sump strainer analysis for GSI-191 with respect to the potential impact of a pressurizer surge line nozzle rupture.

Summary Statement
The replacement sump strainers were installed and declared operable during the fall 2006 refueling outage. Regulatory inspection of the installation was conducted during the outage by NRC Region II and documented in Reference 1. Large scale testing has been completed and bounds a complete failure of the pressurizer surge line. The final test reports are expected from the vendor in October 2007 in support of the Generic Letter (GL) 2004-02 closeout response due to the NRC on or before December 31, 2007. Based on an assessment of the preliminary strainer test data, the VCSNS sump strainers will support long term cooling in the case of a pressurizer surge line rupture.

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Analysis Overview

The VCSNS response to GL 2004-02 (Reference 2) provides the detail on the break selection consistent with NEI Guideline 04-07 and the associated NRC SER. The pressurizer surge line double ended guillotine break has been specifically included in the analysis. The debris generation data presented on Tables 3-3 through 3-6 of the response has been updated on the following page based on the current (in progress) analysis. Note that only the Reflective Metal Insulation (RMI) and Marinite insulation generation terms have changed. VCSNS stated in the GL 2004-02 response (Reference 2, section 3.5), that it is apparent by examining the results listed in Tables 3-3, 3-4 and 3-6 that the break in the 14 inch pressurizer surge line or the 6 inch Pressurizer Safety Relief line is bounded by the break in the 31inch RCS Cross-over Line. VCSNS also stated that the break at the reactor vessel safe end is also potentially limiting based on particulate loading from the Marinite insulation.

The installed replacement sump strainers included two (2) Atomic Energy of Canada, Limited (AECL) fin strainers, one per train. The 'A' train strainer surface area is 2939 ft^2 and the 'B' train strainer is 2379 ft^2. The strainers were installed within the existing sump pits. The design approach was to install the maximum surface area considering interferences and clearances for maintenance and house keeping. The 'B' train is smaller only because of interferences and restrictions of the sump pit. Testing was completed based on the 'B' sump strainer surface area.

Large scale testing has been completed for three cases, using one bank of full scale strainer fins with a total surface area of 357 ft^2. The three large scale tests cases discussed below are based on the preliminary test results of the analysis in progress.

- Case 1: The maximum fiber load with RMI debris filling the sump pit. The RMI debris loading is a limiting case which transport testing and analysis have eliminated as a design case.
- Case 2: The maximum particulate load with all coatings failed as particulate. This test included thin bed testing in which additional fiber (beyond the design value) was added to quantify strainer performance.
- Case 3: The maximum particulate load with unqualified epoxy coatings assumed to fail as chips (other coatings fail as particulate).

The preliminary results indicate the limiting case for debris head loss across the sump strainer to be the break at the reactor vessel safe end assuming unqualified epoxy coatings fail as chips. Preliminary analysis results also indicate a substantial NPSH margin for the limiting Residual Heat Removal (RHR) pump.

Based on the assessment of the preliminary strainer test data, the VCSNS replacement sump strainers will support long term cooling. The debris loading cases tested bound the debris loading generated by a break at the pressurizer surge line nozzle.

Table 3-3 **Break No. 1 – 31" RCS Cross-over Line DEGB Debris Generation (LBLOCA)** Ref. 3	
Insulation Type	Insulation Type Loop "A" Crossover
RMI	47,577 ft^2
Temp-Mat: 11.7D ZOI	7.2 ft^3
Temp-Mat: 3.7D ZOI	1.0 ft^3

Table 3-4 **Break No. 1 – 6" Pressurizer Safety Relief Line DEGB Debris Generation (SBLOCA)** Ref. 3	
Insulation Type	6" Pressurizer Safety Line Break
RMI	15,618 ft^2
Temp-Mat: 11.7D ZOI	7.1 ft^3
Temp-Mat: 3.7D ZOI	0.0 ft^3

Table 3-5 **Break No. 1 – Reactor Vessel Cavity Break at a Nozzle Debris Generation (LBLOCA)** Ref. 3	
Insulation Type	Loop "A" Hot Leg to RV Nozzle Break
RMI	12,374 ft^2
Marinite	8.58 ft^3

Table 3-6 **Break No. 1 – Pressurizer Surge Line** Ref. 3	
Insulation Type	14" Pressurizer Surge Line Break
RMI	2,025 ft^2
Kaowool M-Board	4.4 ft^3

Should you have any questions, call Arnie Cribb at (803)345-4346.

Very truly yours,

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