



Jeffrey B. Archie
Vice President, Nuclear Operations
803.345.4214

December 21, 2007
RC-07-0183

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dear Sir/Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
PRELIMINARY SUPPLEMENTAL RESPONSE TO NRC GENERIC LETTER
2004-02, POTENTIAL IMPACT OF DEBRIS BLOCKAGE ON EMERGENCY
RECIRCULATION DURING DESIGN BASIS ACCIDENTS AT PRESSURIZED-
WATER REACTORS – CASE 2 PLANT EXTENSION REQUEST

- Reference:
1. W. H. Ruland (NRC) to A. Pietrangelo (NEI), Supplemental Licensee Responses to Generic Letter 2004-02, November 30, 2007
 2. W. H. Ruland (NRC) to A. Pietrangelo (NEI), Plant-Specific Requests for Extension of Time to Complete One or More Corrective Actions for Generic Letter 2004-02, November 8, 2007
 3. J. B. Archie to Document Control Desk, 90 Day Response to NRC Generic Letter 2004-02, dated March 7, 2005, RC-05-0037
 4. J. B. Archie to Document Control Desk, Response to NRC Generic Letter 2004-02, dated September 1, 2005.

This letter provides South Carolina Electric & Gas Company's (SCE&G's) preliminary supplemental response to Generic Letter 2004-02 for Virgil C. Summer Nuclear Station (VCSNS) as prescribed by Reference 1. Reference 2 identifies the status cases for responding licensees. VCSNS, by the circumstances described in Reference 2 is a Case 2 plant. Reference 3 above provided SCE&G's initial response for the request for information in part 1 of the generic letter. Reference 4 provided the additional details requested in part 2 of the generic letter. SCE&G is submitting the required preliminary summary for the supplemental information in accordance with Reference 1.

Up until mid-December 2007, VCSNS considered itself to be a Case 1 plant as described in Reference 2. VCSNS was awaiting the completion of a downstream effects analysis and a Paint Chip Transport Analysis. These analyses were expected to be complete by December 2007. VCSNS was in the process of preparing a preliminary Supplemental Response to Generic Letter and request an extension for the submittal of the complete Supplemental Response as prescribed in Reference 2. However, on December 18, 2007, SCE&G was informed by our downstream effects vendor that additional analysis would be required to address an emerging issue. The issue pertains to unqualified coatings that failed at sizes smaller than assumed in WCAP-16406, Revision 1, and therefore adversely affects the depletion factor in the WCAP. The additional analysis cannot be completed by December 31, 2007. As a result, VCSNS is in effect a Case 2 plant and requests an extension to February 29, 2008, to submit the complete GL 2004-02 Supplemental Response to the NRC.

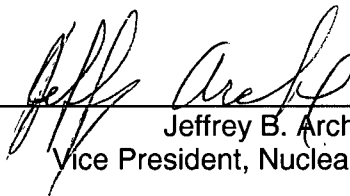
Should you have questions, please call Mr. Bruce Thompson at (803) 931-5042.

Allo
NRR

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

12/21/07

Executed on



Jeffrey B. Archie

Vice President, Nuclear Operations

JT/JBA/jw
Attachment

c: K. B. Marsh
S. A. Byrne
N. S. Carns
J. H. Hamilton
R. J. White
V. M. McCree
R. E. Martin
NRC Resident Inspector
NSRC
CER (CR-04-02911)
File (815.14)
DMS (RC-07-0183)

**NRC Generic Letter 2004-02
Preliminary Supplemental
Summary Information**

Overall Compliance:

South Carolina Electric and Gas Company (SCE&G) installed modifications during the Fall 2006 Refueling Outage (RF16) and completed supporting analyses to address the concerns for V. C. Summer Nuclear Station (VCSNS) under Generic Safety Issue, GSI-191, "Assessment of Debris Accumulation on Pressurized Water Reactor (PWR) Sump Performance." The surface area of the new recirculation sump strainers are more than 50 times larger than those originally installed. Large scale prototypical pressure drop testing has been completed and documented. The pressure drop meets the minimum net positive suction head for the residual heat removal pumps and reactor building (RB) spray pumps which take suction on the recirculation sumps. The system design will meet long term cooling requirements under 10CFR50.46.

The VCSNS Engineering Change Process was updated to track important design inputs that support the GSI-191/GL 2004-02 issue resolution. The program provides for the tracking of margins for important design parameters by the designated principle design engineer. The program procedure identifies the reference document which calculates the design input and the reference document which uses the design inputs. The specific design inputs added are:

- The existing program that tracks aluminum inside the RB for hydrogen control was revised to include the Chemical Effects aspects of GSI-191. The same design margin used for hydrogen control was used for Chemical Effects.
- A new program was added to track unqualified coatings inside the RB. The program is referenced to the unqualified coatings calculation which lists the unqualified coatings and design margins.
- A new program was added to track insulation inside the RB. This program is referenced to the debris generation calculation which lists the insulation and reference drawings.
- A new program was added to track the additional structures or components inside the loop compartments that may fall within the qualified coatings zone of influence (ZOI). The program is referenced to the 4D ZOI calculation for Qualified (Level 1) Coatings inside the RB. (Reference: WCAP-16568-P, Rev. 0, Jet Impingement Testing to Determine the Zone of Influence (ZOI) for DBA Qualified/Acceptable Coatings," June 2006)

The inputs and assumptions for debris generation, debris transport, head loss determination (including chemical effects considerations), and RB sump level, and associated testing have been documented in an approved engineering document (subject to the requirements of 10CFR50 Appendix B) to facilitate evaluation of conditions that may be contrary to analysis and modification input assumptions, and to ensure that future changes to the plant can be readily evaluated against these design and licensing basis criteria.

In summary, SCE&G has implemented the necessary programmatic and process controls to ensure the recirculation function will be maintained in the future.

Two associated analyses are in process:

- The Downstream Effects analysis was initially completed based on WCAP-16406, Revision 0. The analysis for pumps is being updated to WCAP-16406, Revision 1.
- Paint Chip Transport is being updated to the metrics provided in NUREG/CR-6916 and recently developed epoxy coating debris size distributions. The analysis will demonstrate that the large scale testing with paint chips conservatively bounds debris loading.

During the review process for the pump Downstream Effects analysis update, SCE&G identified a change in the coating particulate size assumed under WCAP-16406, Revision 1. The WCAP assumes 94% of failed unqualified coating are 400 microns or larger, and can settle out in the reactor vessel, reducing debris in the sump fluid over a period of time. The WCAP includes a depletion model to account for this reduction. However, data presented in EPRI Report No. 1011753, original equipment manufacturer unqualified coatings for nuclear power plants failed in sizes smaller than 400 microns. Tests funded by Luminant and analysis completed by Alion Science, Inc. indicates zinc coating particulate is substantially less than 400 microns as well. The smaller size particulate reduces the depletion factor presented in WCAP-16406, Revision 1.

In support of the pump analysis update, this information was presented to our downstream effects vendor, Westinghouse Electric Company LLC, and in mid-December 2007, they recommended a review of the valve downstream effects based on concerns over the reduced depletion factor. As a result, an updated analysis is deemed necessary, but cannot be completed by December 31, 2007. The updated analysis is expected to yield acceptable results.

Due to the need to review downstream effects, SCE&G requests an extension to complete this additional analysis and to submit the complete GL 2004-02 Supplemental Response to the NRC on or before February 29, 2008.