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August 20, 2001
RC-01-0153

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U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. R. R. Assa

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
REQUEST FOR EXPEDITED REVIEW OF
WCAP-12488 ADDENDUM 1, REVISION 1

Reference: Westinghouse Letter LTR-NRC-01-23, dated August 6, 2001

South Carolina Electric & Gas Company (SCE&G), acting for itself and as agents for South Carolina Public Service Authority is requesting an expedited review of WCAP-12488, Addendum 1, Revision 1, Westinghouse Fuel Criteria Evaluation Process, that was submitted to the NRC on August, 6, 2001.

Based on post irradiation examination data collected by Westinghouse for the Virgil C. Summer Nuclear Station (VCSNS), it appears that a current Westinghouse design limit for hydrogen pickup may be exceeded for high duty fuel at burnup greater than 50 Gigawatt Days per Metric Ton Uranium (GWD/MTU). This hydrogen limit is unique to Westinghouse and was established to preclude loss of ductility of the fuel assembly ZIRLO structural components due to hydrogen embrittlement.

Westinghouse has evaluated this condition and has concluded that the hydrogen limit has little impact on the loss of ductility. The referenced WCAP addendum substitutes more appropriate criterion for this limit to assure continued structural integrity of the fuel assemblies.

SCE&G requests the review and approval of this WCAP Addendum as soon as possible since the continued application of the Westinghouse self-imposed limit represents considerable burden for SCE&G, and a challenge to the successful licensing and startup of VCSNS Cycle 14. While the Cycle 14 Reload Safety Evaluation is planned to be completed in February 2002, ongoing design and procurement activities for Cycle 14 would require completion of the NRC review by October 15, 2001.

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Should you have any questions please call Mr. Bill Herwig at (803) 345-4414 or Mr. Phil Rose at (803) 345-4052 at your earliest convenience.

Very truly yours,



Stephen A. Byrne

PAR/SAB/dr
Attachment

c: N. O. Lorick
N. S. Carns
T. G. Eppink (w/o attachment)
R. J. White
L. A. Reyes
K. M. Sutton
W. R. Higgins
NRC Resident Inspector
NSRC
RTS (0-C-01-1248)
File (810.32)
DMS (RC-01-0153)

**Request for Expedited Review
of
Westinghouse Topical Report
WCAP-12488, Addendum 1, Revision 1**

V. C. Summer Nuclear Station (VCSNS) has long been a proponent of Lead Test Assemblies (LTA), and has participated in programs to support acquisition of performance data important to the industry. South Carolina Electric & Gas (SCE&G) had anticipated the insertion of a high burnup LTA into Cycle 14. However, recent discussions with Westinghouse have identified a challenge to the licensing of the inserted LTA based on assembly structure hydriding. Further discussion suggests that these licensing implications may extend beyond the potential LTA implementation. The use of hydriding as a limit for fuel assembly structures is one of the topics addressed in WCAP-12488-P, Addendum 1, which was submitted to the NRC for review in February 2001. Westinghouse has recently revised the report in WCAP-12488-P, Addendum 1, Revision 1, which supercedes the earlier submittal, to address only assembly structural limits. This report has been submitted to the NRC in August 2001 for staff review. Details of the issue, the importance of the topical review, and need for timely review are summarized below.

Recent data highlights the trends in hydrogen pick-up that may challenge the Westinghouse self-imposed 600 ppm hydrogen pick-up limit for fuel assembly non-heat flux structures.

Based on the strong technical evidence, Westinghouse has concluded that the 600 ppm hydrogen uptake limit is inconsequential in protecting fuel structural integrity for which the limit was established, and is not reportable pursuant to Part 21. Further, this limit can only be measured by inference based on destructive hot cell testing. For these reasons, Westinghouse believes that hydrogen uptake is not an appropriate specific acceptable fuel design limit (SAFDL) for non-heat flux assembly components. From this technical basis, Westinghouse proposed a change to a more appropriate limit in the submittal of WCAP-12488-P, Addendum 1, Revision 1. The revised limit, based on metal wastage, is more consistent with current industry practice, and is more reliably measurable.

A recent assessment of test data for a ZIRLO sample from VCSNS showed practically no margin to the hydriding limit on a best estimate basis. Metal wastage was not challenged. While the Westinghouse results do not point to a violation, the possibility of violation in the hydriding limit with the application of conservatism, or for untested structures with similar or higher duty, cannot be excluded.

It is probable that other assemblies in the Cycle 14 core, having similar or higher duty than the tested assembly, will be in excess of the component hydriding limit. The Reload Safety Evaluation (RSE) for VCSNS reload cores is typically performed under 10 CFR 50.59, with no prior NRC approval required. However, given the reasonable possibility that the SAFDL for structural hydriding may be exceeded, SCE&G envisions that prior approval of the RSE will be required for the Cycle 14 design to support startup in the Spring of 2002. Given the current status of the reload design and typical reasonable schedules for staff review, this activity would likely require a request for expedited review. SCE&G has not ruled out the possibility of a Lead Test Assembly (LTA) in the VCSNS Cycle 14 core, under the revised 10 CFR 50.59 rule, to

provide additional data on high burnup characteristics. This too would require either removal of the current hydriding limit or a separate submittal for review by the NRC staff.

The continued application of this Westinghouse self-imposed limit represents a considerable burden for SCE&G, and a challenge to the successful licensing and startup of VCSNS Cycle 14. Approval of WCAP-12488, Addendum 1, Revision 1 will remove the hydriding limit, allowing for licensing of the reload under 10 CFR 50.59 without prior NRC approval. Therefore, SCE&G urgently requests that the NRC staff consider increasing the priority on the review of this topical, to support VCSNS Cycle 14. While the Cycle 14 Reload Safety Evaluation is planned to be completed in February 2002, ongoing design and procurement activities for Cycle 14 would require completion of the NRC review by October 15, 2001. This date would also support LTA insertion. To reduce the uncertainties on the part of all parties, SCE&G requests review completion no later than October 15, 2001.

Westinghouse has prepared and submitted Revision 1 of WCAP-12488-P, Addendum 1 to the NRC to remove all information not directly related to the component hydriding limit from the original addendum submitted in February 2001, in the hopes that this may reduce the burden of review. Westinghouse has also verbally committed to support meetings, telephone conferences and any other reasonable request to help support a timely review by the staff. SCE&G pledges similar support in consideration of this request.

Your prompt consideration of this request is greatly appreciated.