



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Attachment to WOG-93-066

March 10, 1993

Mr. Lawrence A. Walsh, Chairman  
Westinghouse Owners Group  
North Atlantic Energy Services Corporation  
P. O. Box 300  
Seabrook, NH 03874

Dear Mr. Walsh:

SUBJECT: Westinghouse Owners Group-Steam Generator Tube  
Uncovery Issue

- References:
- (1) WCAP-13247, "Report on the methodology for the resolution of the steam generator tube uncovery issue." dated March 1992.
  - (2) Letter from Lawrence A. Walsh to Robert C. Jones, "Westinghouse Owners Group - Steam generator tube uncovery issue," dated March 31, 1992.
  - (3) Memorandum from LeMoine J. Cunningham to Robert C. Jones, "WCAP-13247," report on the methodology for the resolution of the steam generator tube uncovery issue," submitted by Westinghouse Owners Group dated September 14, 1992.

In July 1987, North Anna Unit 1 steam generator tube rupture indicated that the apex of the steam generator tubes may have been partially uncovered for 10-15 minutes. In response to concerns expressed by the NRC staff, the Westinghouse Owners Group (WOG) initiated a program in 1988 to determine if the iodine release resulting from partial uncovery of steam generator tubes during a steam generator tube rupture (SGTR) event or other limiting event can have a significant safety impact on Westinghouse plants. As discussed in your letter of March 31, 1992 (Ref. 2), we understand that the WOG has completed its work on this matter, and that WCAP-13247 (Ref. 1) demonstrates that a significant safety issue does not exist for Westinghouse facilities.

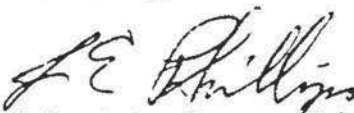
Based on our review of WCAP-13247, it is our understanding that Westinghouse performed representative SGTR analyses using the LOFTTR2 computer code to characterize the thermal and hydraulic response to various SGTR scenarios for representative plants and

to provide boundary conditions for the mixture level model. The representative plants used for the analyses were a four-loop plant with model 51 steam generators and a two-loop plant with model 44 steam generators. These plants were selected because model 51 and model 44 steam generators are expected to be most susceptible to tube uncovering during an event. Westinghouse performed the LOFTTR2 analyses for the following accident scenarios: (a) SGTR with a stuck-open PORV; (b) SGTR with a modulating PORV; and (c) SGTR with a cycling safety valve. The stuck-open PORV case resulted in the highest steam release and consequently the greatest offsite dose consequences. The results of these LOFTTR2 analyses were then used as boundary conditions to compute the steam generator water level for the duration of these events. The results of the iodine release calculation indicated that the SGTR analysis with a stuck-open PORV yields the highest iodine release with only about 1% of the release being attributable to steam generator tube uncovering. Thus, Westinghouse concluded that the effect of tube uncovering is essentially negligible for the limiting transient, and that the current design basis SGTR analysis methodology remains valid.

Based on our review of your submittal, we believe that the WOG program represents a comprehensive effort to address the staff's concerns. The assumptions and parameters used in the iodine transport quantification are consistent with the criteria established by the staff in the Standard Review Plan (Section 15.6.3), and the Westinghouse analyses demonstrate that the effects of partial steam generator tube uncovering on the iodine release for SGTR and non-SGTR events is negligible. Therefore, we agree with your position on this matter and consider this issue to be resolved.

Thank-you for your attention and efforts in resolving this matter.

Sincerely,

  
for Robert C. Jones, Chief  
Reactor Systems Branch  
Division of Systems Safety and Analysis

cc: K. Voytelle (H)  
A. Engel (TU Electric)