

YANKEE ATOMIC ELECTRIC COMPANY



1671 Worcester Road, Framingham, Massachusetts 01701

OC-149
WOG-SGTR-85-005

May 24, 1985

Mr. Hugh L. Thompson, Jr., Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Phillips Bldg., 7920 Norfolk Avenue
Bethesda, Md. 20014

Attention: Mr. Cecil O. Thomas, Chief
Standardization of Special Projects Branch

Westinghouse Owners Group
Resolution and SGTR Licensing Issues

Reference: Westinghouse Owners Group letter OG-140, WOG SGTR-84-024 dated December 20, 1984, transmitting WCAP-10698 (Proprietary) and WCAP-10750 (Non-proprietary)

Dear Mr. Thompson:

Enclosed are:

1. 22 copies of Supplement 1 to WCAP-10698 (Proprietary)
2. 12 copies of Supplement 1 to WCAP-10750 (Non-proprietary)

Also enclosed are:

1. One (1) copy of Proprietary Information Notice. (Non-proprietary)
2. One (1) copy of Application for Withholding, CAW-85-037 (Non-proprietary)
3. One (1) copy of Affidavit AW-76-31 (Non-proprietary)

This information is being submitted on behalf of the Steam Generator Tube Rupture (SGTR) Subgroup of the Westinghouse Owners Group (WOG) to support the resolution of the licensing issues associated with an SGTR accident.

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See Attached
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A subgroup was formed within the WOG to address the licensing issues associated with an SGTR event on a generic basis. The utilities which have participated in the SGTR Subgroup program are listed below, along with the respective plants.

<u>Utility</u>	<u>Plants</u>
Carolina Power & Light Company	Shearon Harris
Commonwealth Edison Company	Byron/Braidwood
Duke Power Company	Catawba
Duquesne Light Company	Beaver Valley 2
Houston Lighting & Power	South Texas
Northeast Utilities	Millstone 3
Rochester Gas & Electric	Ginna
Southern Co. Services for Georgia Power Company	Vogtle
Tennessee Valley Authority	Watts Bar
Texas Utilities Generating Co.	Comanche Peak
Yankee Atomic Electric for Public Service Co. of N.H.	Seabrook

The results of the initial portion of the program to resolve the SGTR licensing issues were presented in WCAP-10698 (Proprietary) and WCAP 10750 (Non-Proprietary), which were transmitted by the referenced letter. The initial portion of the program was performed to demonstrate margin to steam generator overfill for a design basis SGTR. The second portion of the program provides an evaluation of the potential offsite radiation exposure for a design basis SGTR without steam generator overfill. The purpose of this letter is to transmit the results of the offsite dose evaluation which are presented in the attached supplements to WCAP-10698 (Proprietary) and WCAP-10750 (Non-Proprietary).

The analysis methodology to determine the margin to steam generator overfill for an SGTR accident was developed and presented in WCAP-10698 (Proprietary) and WCAP-10750 (Non-Proprietary). The analysis methodology is based on the simulation of the operator actions for SGTR recovery in Revision 1 of the Emergency Response Guidelines which were developed by the WOG. The operator action times required to perform the recovery operations were evaluated and appropriate times were determined for use in the analysis. Sensitivity studies were performed to determine conservative initial conditions and assumptions and the results of these analyses were used to establish the design basis accident to be used for the SGTR analysis. A reference plant design was identified to serve as the basis for application of the analysis methodology. An evaluation was performed to identify potential single failures for the SGTR analysis and to determine the worst single failure with respect to the margin to steam generator overfill. An analysis was performed for the design basis SGTR for the reference plant using the revised methodology and assuming the worst single failure. The results of this analysis indicate that there is margin to steam generator overfill for the reference plant.

Although demonstration of margin to steam generator overfill is one of the major SGTR concerns, it is also necessary to demonstrate that the offsite radiation exposure for an SGTR where overfill does not occur will be within the allowable dose guidelines. Therefore, an evaluation was performed to determine the offsite radiation doses for the single failures considered for the evaluation of the margin to overfill, and the results are presented in the attached supplements to WCAP-10698 (Proprietary) and WCAP-10750 (Non-Proprietary).

The offsite radiation doses were determined for the various single failures considered using the results of the SGTR analyses for the reference plant and the meteorological parameters for a reference site. The results of this evaluation demonstrate that the offsite radiation doses for the reference site are within the guidelines of Standard Review Plan 15.6.3 for each of the single failures considered.

The information presented in WCAP-10698 (Proprietary) and WCAP-10750 (Non-Proprietary) and the attached supplements indicate: (1) that the operators can respond to a design basis SGTR and perform the required recovery actions to terminate the primary to secondary leakage before steam generator overfill occurs, and (2) that the offsite radiation doses for a design basis

SGTR will be within the allowable guidelines. However, a contingency evaluation will also be performed to determine the effects of steam generator overfill resulting from an SGTR to demonstrate that the consequences are acceptable. An analysis will be performed to determine the thermal and hydraulic transient for an SGTR assuming extended operator action times which result in overfill. This transient will be used as the basis for calculation of the radiation exposure resulting from the event and for evaluation of waterhammer potential. The results of this evaluation is scheduled for submittal by November 1, 1985. An evaluation of the structural loading of the main steamlines and associated supports under water-filled conditions will be evaluated on a plant specific basis and will be submitted separately for each plant.

In summary, the attached supplements to WCAP-10698 (Proprietary) and WCAP-10750 (Non-Proprietary) reports are submitted for your review to support the resolution of the SGTR Licensing issues for the plants in the WOG Subgroup. As noted above, the current results will be further supplemented by an evaluation of the consequences of steam generator overfill. If you have any questions regarding the attached reports or the future effort, the WOG SGTR Subgroup is available to answer them.

This submittal contains proprietary information of Westinghouse Electric Corporation. In conformance with the requirements of 10 CFR 2.790, as amended, of the Commission's regulations, we are enclosing with this submittal, an application for withholding from public disclosure with an affidavit. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission.

Correspondence with respect to the affidavit or application for withholding should reference CAW-85-037 and should be addressed to R. A. Weisemann, Manager of Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania 15230.

Sincerely yours,

Alan E. Ladieu

Alan Ladieu, Chairman
SGTR Subgroup
Westinghouse Owners Group

Enclosures: Supplement 1 to WCAP-10698 - 22 Copies
Supplement 1 to WCAP-10750 - 12 Copies

cc: V. Nerses
L. B. Marsh
N. Lewis
WOG SGTR Subgroup Members

PROPRIETARY INFORMATION NOTICE

TRANSMITTED HERewith ARE PROPRIETARY AND/OR NON-PROPRIETARY VERSIONS OF DOCUMENTS FURNISHED TO THE NRC IN CONNECTION WITH REQUESTS FOR GENERIC AND/OR PLANT SPECIFIC REVIEW AND APPROVAL.

IN ORDER TO CONFORM TO THE REQUIREMENTS OF 10CFR2.790 OF THE COMMISSION'S REGULATIONS CONCERNING THE PROTECTION OF PROPRIETARY INFORMATION SO SUBMITTED TO THE NRC, THE INFORMATION WHICH IS PROPRIETARY IN THE PROPRIETARY VERSIONS IS CONTAINED WITHIN BRACKETS AND WHERE THE PROPRIETARY INFORMATION HAS BEEN DELETED IN THE NON-PROPRIETARY VERSIONS ONLY THE BRACKETS REMAIN, THE INFORMATION THAT WAS CONTAINED WITHIN THE BRACKETS IN THE PROPRIETARY VERSIONS HAVING BEEN DELETED. THE JUSTIFICATION FOR CLAIMING THE INFORMATION SO DESIGNATED AS PROPRIETARY IS INDICATED IN BOTH VERSIONS BY MEANS OF LOWER CASE LETTERS (a) THROUGH (g) CONTAINED WITHIN PARENTHESES LOCATED AS A SUPERScript IMMEDIATELY FOLLOWING THE BRACKETS ENCLOSING EACH ITEM OF INFORMATION BEING IDENTIFIED AS PROPRIETARY OR IN THE MARGIN OPPOSITE SUCH INFORMATION. THESE LOWER CASE LETTERS REFER TO THE TYPES OF INFORMATION WESTINGHOUSE CUSTOMARILY HOLDS IN CONFIDENCE IDENTIFIED IN SECTIONS (4)(11)(a) through (4)(11)(g) OF THE AFFIDAVIT ACCOMPANYING THIS TRANSMITTAL PURSUANT TO 10CFR2.790(b)(1).