

BALTIMORE GAS AND ELECTRIC COMPANY

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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

November 13, 1981



U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555

Docket Nos. 50-317
50-318

ATTENTION: Mr. Darrell G. Eisenhut, Director
Division of Licensing

REFERENCE: Generic Letter 81-21, "Natural Circulation Cooldown",
dated May 5, 1981, from D. G. Eisenhut to Licensees
of Operating Pressurized Water Nuclear Power Reactors

Gentlemen:

As requested in your Generic Letter 81-21 dated May 5, 1981, the following constitutes an assessment of our procedures and training with respect to the avoidance, recognition, and reaction to reactor vessel voiding during a natural circulation cooldown. The specific areas of interest described in your letter are addressed as follows:

- 1) (Provide) a demonstration (e.g., analysis and/or test) that controlled natural circulation cooldown from operating conditions, conducted in accordance with your procedures should not result in reactor vessel voiding.

Revision 3 to Emergency Operating Procedure-12, "Loss of Reactor Coolant Flow/Natural Circulation", was approved on November 13, 1981, and incorporates the guidelines established by the Combustion Engineering Owners' Group (CEOG) and included in CEN-152, "Combustion Engineering Emergency Procedure Guidelines". CEN-152 was submitted to the NRC for review in June 1981. As CEN-152 is presently undergoing revision as a result of a letter from D. G. Eisenhut to the CEOG dated September 15, 1981, future revisions may be required. A summary of the analytical justification for the CEN-152 guidelines is presented in CEN-PSD-154 which will be released later this month.

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- 2) (Provide) verification that supplies of condensate-grade auxiliary feedwater are sufficient to support your cooldown method.

The seismic tornado-proof condensate storage tank number 12 contains a minimum of 150,000 gallons per unit. According to FSAR Section 10.2.3 this is "adequate to remove decay heat from both units for more than 10 hours after initiation of cooldown and still maintain normal no-load water level in the steam generators". As the guidelines in CEN-152 require that only steam generator level in the indicated range need be maintained for a natural circulation cooldown, and since the cooldown and hold period need not exceed ten hours, condensate storage tank capacity is adequate for the transient.

- 3) (Provide) a description of your training program and the provisions of your procedures (e.g., limited cooldown rate, response to rapid change in pressurizer level) that deal with prevention or mitigation of reactor vessel voiding.

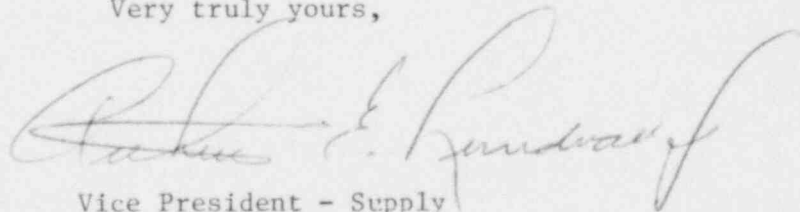
Requalification training for licensed operators held during February-May of this year included a one-week session at the Combustion Engineering simulator in Windsor, CT. Included in this session was a discussion of the St. Lucie natural circulation cooldown and training concerning the indication and action required to mitigate the consequences of a natural circulation cooldown. Subsequent to this training, additional licensed operator requalification training currently in progress, and lasting through December, will review the revised natural circulation procedure in detail, and discuss the methodology behind the revised procedure.

The procedure itself contains recommendations from CEN-152 to prevent and mitigate reactor vessel voiding. After a loss of reactor coolant flow is verified, the procedures instruct Operators to cooldown as rapidly as possible within Technical Specification limits (to 300°F) while maintaining RCS pressure above 1700 psia, this maximizing the RCS subcooled margin. The RCS temperature and pressure is held constant for a specified number of hours to allow the reactor vessel head to cool before proceeding with depressurization and an eventual initiation of the shutdown cooling system.

Void indications are identified in the procedure in accordance with CEN-152. The Operator is instructed to suspend letdown, maximize pressurizer heater operation for repressurization, and stop the cooldown if insufficient RCS make-up is the cause for the voiding. These actions shall be taken until an adequate RCS subcooled margin is achieved.

Should you have further questions regarding this matter, please do not hesitate to contact me.

Very truly yours,



Vice President - Supply

Mr. Darrell G. Eisenhut

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cc: Messrs. J. A. Biddison, Esquire
G. F. Trowbridge, Esquire
D. H. Jaffe, NRC
R. E. Architzel, Resident Inspector