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JOSEPH A. TIERNAN
VICE PRESIDENT
NUCLEAR ENERGY

March 21, 1988

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Dockets Nos. 50-317 & 50-318
Classification of the Feedline Break Event as a Design Basis Event

REFERENCES:

(a) Letter from Mr. J.A. Tiernan (BG&E), to Document Control Desk (NRC), dated March 17, 1987, "Response to Request for Additional Information - Moderator Temperature Coefficient Amendment and Unit 2 Cycle Reload Request".

(b) Letter from Mr. D.S. Elkins (BG&E), to S.A. McNeil (NRC), dated March 23, 1987, "Response to Request for Additional Information".

(c) Letter from Mr. G.C. Lainas (NRC), to Mr. A.E. Lundvall (BG&E), dated January 18, 1983, "Amendment No. 62 to Facility Operating License No. DPR-69, Calvert Cliffs Nuclear Power Plant Unit No. 2".

(d) Letter from Mr. A.C. Thadani (NRC), to Mr. J.A. Tiernan (BG&E), dated June 17, 1986, "Amendment No. 118 and 100 to Facility Operating License Nos. DPR-53 and DPR-69, Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2".

Gentlemen:

By Reference (a) and (b), we committed to providing an evaluation of whether or not the Feedline Break Event is to be classified as a Design Basis Event (DBE). We affirm that the Feedline Break Event <u>is</u> to be considered a DBE, and that it is handled as such in the Unit 1 Cycle 10 reload request for license amendment. The Feedline Break Event will remain in the Updated Final Safety Analysis Report (UFSAR) as a DBE and is so referenced in Section 14.1 and 14.26 of that document.

The Calvert Cliffs Units 1 and 2 design can accommodate the Feedline Break Event as a DBE. Classification of the event as a DBE does not increase the severity of the Feedline Break Event currently presented in the UFSAR. The current

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Feedline Break analysis remains valid for both existing operating cycles and the upcoming Unit 1 Cycle 10. The Feedline Break Event will be evaluated as all other non-LOCA transient safety analyses, in future reload applications.

The event was first analyzed for CCNPP to support the inclusion of the third train Auxiliary Feedwater System (AFW) modification for both Units 1 and 2 (References (c) and (d)). A conservative approach was adopted in performing this bounding analysis, because it was available and already approved for use.

The Feedline Break Event (with an associated loss of AC power) is currently presented as a transient resulting in a peak reactor coolant system pressure of just below the 110% design pressure limit for the reactor coolant system. This characterization has developed due to the conservative assumption that the break in the feedwater line occurs at the bottom of the steam generator, and that only low enthalpy fluid leaves that break location. This in turn results in a significant heat up of the system. In reality, the feedline is not located at the bottom of the steam generator, but rather high on the generator such that both high enthalpy fluid and steam would exit the break.

Artificially locating the break at the bottom of the steam generator was the adopted approach, thus providing a simplified, easily modeled, bounding type analysis. If the high enthalpy fluid and steam were to be credited, a significantly larger amount of heat removal from the primary reactor coolant system would occur, thus resulting in a greatly reduced peak primary pressure.

If the alternate approach to the analysis were to be adopted (ie., consider the actual feedline location, thus resulting in characterization of the event as an overcooling event, rather than a loss of heat sink event) the peak system pressure limit would not be approached. The plant would respond more similarly to the Steam Line Break scenario, though less severe. An overcooling analysis was not performed for the Feedline Break Event, rather the event was analyzed as a loss of heat sink type event. We therefore accepted the large penalties of the more conservative analysis. We may at some future time, more accurately model this DBE, in order to reflect more realistic results associated with an accident of this type. Reanalysis of the event will most likely not be considered until equilibrium 24-month cycles are in full operation.

Very truly yours,

J. A. Tiernan

JAT/DSE/lmt

cc: D. A. Brune, Esquire
J. E. Silberg, Esquire
R. A. Capra, NRC
S. A. McNeil, NRC
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