



## Constellation Energy

November 29, 2005

U. S. Nuclear Regulatory Commission  
Washington, DC 20555

**ATTENTION:** Document Control Desk

**SUBJECT:** Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318  
Response to Request for Additional Information - License Amendment Request:  
Technical Specification Improvement Regarding Steam Generator Tube Integrity  
Using the Consolidated Line Item Improvement Process

- REFERENCES:**
- (a) Letter from Mr. G. Vanderheyden (CCNPP) to Document Control Desk (NRC), dated July 13, 2005, "License Amendment Request: Technical Specification Improvement Regarding Steam Generator Tube Integrity Using the Consolidated Line Item Improvement Process"
  - (b) Letter from Mr. P. D. Milano (NRC) to Mr. G. Vanderheyden (CCNPP), dated October 17, 2005, "Request for Additional Information Regarding Steam Generator Tube Integrity Requirements (TAC Nos. MC8067 and MC8068)"
  - (c) Letter from Mr. A. W. Dromerick (NRC) to Mr. C. H. Cruse (BGE), dated May 23, 1998, "Issuance of Amendments for Calvert Cliffs Nuclear Power Plant Unit No. 1 (TAC No. M97855) and Unit No. 2 (TAC No. M97856)"
  - (d) Electric Power Research Institute PWR Primary-To-Secondary Leak Guidelines – Revision 3, Final Report, December 2004

By letter dated July 13, 2005 (Reference a), Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) submitted a license amendment request to the Nuclear Regulatory Commission (NRC) to revise the Technical Specification requirements related to steam generator tube integrity. By letter dated October 17, 2005 (Reference b), the NRC requested additional information to support its evaluation. This letter provides the requested information.

### NRC Request:

*On Page 2 of the July 13 application, the licensee stated that the operational primary-to-secondary leakage limit (measured at room temperature, cold conditions) is 100 gallons per day (gpd) per steam generator (SG), which is more conservative than the 150 gpd per SG operational leakage limit approved in TSTF-449. As stated in the TS Bases B 3.4.13 for reactor coolant system operational leakage (see TS page B 3.4.13-2), the initial primary-to-secondary leakage assumed in accident analyses is also defined as 100 gpd per SG. During a main steam line break (MSLB) accident (one of the postulated accident conditions analyzed), the differential pressure across the*

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*SG tubes is greater than the differential pressure during normal operation. As a result, the primary-to-secondary leakage may be greater during an MSLB accident than during normal operation. Since the plant could be operating with leakage as high as the normal operating leakage limit, the amount of leakage during an MSLB accident (or other postulated accidents) could be greater than that assumed in the accident analyses.*

*[a] Discuss the controls that are in place to ensure that the accident-induced leakage performance criteria are not exceeded as a result of operational leakage (i.e., operational leakage at or below TS limit). [b] In addition, discuss whether the initial assumed leakage rate input for the MSLB accident is based on cold or hot plant conditions.*

**CCNPP Response:**

- a. As we indicated in Reference (a), our current and proposed Technical Specification operational leakage limit of 100 gpd/SG (hot plant conditions) is what was assumed in our design basis accident analysis for a postulated MSLB (Reference c). Hence, our current licensing basis assumes no accident induced leakage. Since the steam generators have been replaced, measurements show no appreciable primary-to-secondary leakage from either unit. The current average leakage rates are 0.05 gpd and 0.13 gpd for Unit 1 and 2, respectively.

With our operational procedures that meet or exceed the Electric Power Research Institute guidelines for primary-to-secondary leakage monitoring and corrective actions (Reference d), it is highly unlikely that CCNPP will be operated at a leakage rate high enough to challenge the leakage assumed in our accident analysis. At CCNPP, we use two installed Radiation Monitoring Systems (RMSs) that provide continuous on-line monitoring of primary-to-secondary leakage to plant operators: an N-16 RMS on the main steam line and a condenser off-gas RMS. Readings from the RMSs are confirmed by analyses of grab samples, taken at least once every 72 hours from the steam generators, and monthly from the condenser off-gas. Abnormal Operating Procedure - 10 (AOP-10), Abnormal Secondary Chemistry Conditions, provides actions to take when a small primary-to-secondary steam generator tube leak exists. A small tube leak is defined as one that is greater than 5 gallons per day through any one steam generator. The procedure requires confirmation and monitoring of the leak rate to determine if the leak has stabilized. Operations, Engineering, and Radiation Safety management are notified of the condition of the leak and participate in the evaluation and monitoring of the situation. If the leak rate increases to 40 gallons per day, then preparations are begun for a power reduction and operators review procedures which address steam generator tube leakage. Spikes in the leak rate trend of 20 gallons per day which persist for more than 30 minutes require entry into AOP-2A, Excessive Reactor Coolant Leakage. This abnormal operating procedure requires that power be reduced to less than 50% within one hour and also requires that the plant be placed in Mode 3 within the next two hours. Our procedures require prompt action beginning when the leak rate exceeds 5 gallons per day and, therefore, the likelihood of operating the plant for an extended period of time at a leakage rate that could challenge 100 gpd leakage rate if an MSLB were to occur is very small.

- b. The initial assumed leakage rate input for the MSLB accident analysis is based on hot plant conditions.

The information provided above does not change the previously referenced No Significant Hazards Consideration or the Environmental Assessment.

Should you have questions regarding this matter, please contact Mr. L. S. Larragoite at (410) 495-4922.

Very truly yours,

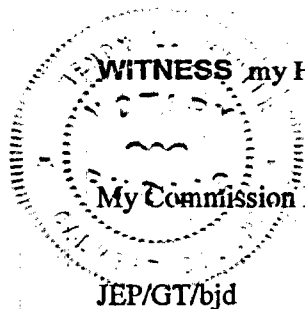
*Jay E. Pollock*

STATE OF MARYLAND :  
: TO WIT:  
COUNTY OF CALVERT :

I, J. E. Pollock, being duly sworn, state that I am Plant General Manager - Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP), and that I am duly authorized to execute and file this License Amendment Request on behalf of CCNPP. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other CCNPP employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

*Jay E. Pollock*

Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of CALVERT, this 29 day of NOVEMBER, 2005.



WITNESS my Hand and Notarial Seal:

My Commission Expires:

JEP/GT/bjd

cc: P. D. Milano, NRC  
S. J. Collins, NRC

*Wendy E. Hunter*

Notary Public  
Wendy E. Hunter  
NOTARY PUBLIC  
Calvert County, Maryland  
My Commission Expires 01/01/06  
Date

Resident Inspector, NRC  
R. I. McLean, DNR