December 23, 2005

Mr. George Vanderheyden, Vice President
Calvert Cliffs Nuclear Power Plant, Inc.
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 - SUPPLEMENTAL REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING STEAM GENERATOR TUBE INTEGRITY REQUIREMENTS (TAC NOS. MC8067 AND MC8068)

Dear Mr. Vanderheyden:

By letter dated July 13, 2005, Calvert Cliffs Nuclear Power Plant, Inc. (the licensee) requested a change to the Technical Specifications (TSs) for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 regarding steam generator tube integrity. Specifically, the licensee requested changes consistent with TS Task Force (TSTF) Change Traveler, TSTF-449, "Steam Generator Tube Integrity," Revision 4.

On November 29, 2005, the licensee responded to a request for additional information (RAI) from the Nuclear Regulatory Commission (NRC) staff dated October 17, 2005. The NRC staff has reviewed the information provided in the November 29 response and has determined that additional information is needed to complete its review. The specific questions are provided in the enclosed RAI. This RAI was discussed with your staff on December 14, 2005, and it was agreed that the licensee's response would be provided within 30 days from the date of this letter.

If you have any questions, please contact me at 301-415-1457.

Sincerely,

/RA/

Patrick D. Milano, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure: RAI

cc w/encl: See next page

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Docket Nos. 50-317 and 50-318
Enclosure: RAI
cc w/encl: See next page
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REQUEST FOR ADDITIONAL INFORMATION

REGARDING STEAM GENERATOR TUBE INTEGRITY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

By letter dated July 13, 2005, as supplemented on November 29, 2005 (Agencywide Documents Access and Management System Accession Nos. ML051990345 and ML053390082, respectively), Calvert Cliffs Nuclear Power Plant, Inc. (the licensee) submitted an application for changes to the Technical Specifications (TSs) for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. The licensee requested changes in accordance with Task Force (TSTF) Change Traveler 449, "Steam Generator Tube Integrity" (TSTF-449). The Nuclear Regulatory Commission (NRC) staff has reviewed the information that the licensee provided and determined that additional information is required in order to complete the evaluation.

1. In its November 29, 2005, letter, the licensee indicated that the current and proposed TSs operational primary-to-secondary leakage limit is 100 gallons per day (gpd) per steam generator (SG) at hot plant conditions. This leakage rate value is also the value assumed in the main steam line break accident (MSLB) analysis. In addition, the licensee indicated that the current licensing basis assumes no accident induced primary-to-secondary leakage. The NRC staff finds from these statements that the licensee may be using the term accident induced primary-to-secondary leakage to refer only to leakage induced by the accident (i.e., leakage from flaws that were not leaking during normal operation).

   The NRC staff and the industry (through Technical Specification Task Force Change Traveler 449, Revision 4 (TSTF-449)) have used the term accident induced leakage to include any primary-to-secondary leakage existing prior to the accident in addition to the primary-to-secondary leakage induced during the accident. This was done, in part, because with today's technology it is not possible to distinguish whether the leakage during a design-basis accident (DBA) is coming from flaws that were leaking during normal operation or whether the leakage is coming from flaws that were not leaking during normal operation.

   The NRC staff recognizes that plants have assumed that the leak rate during a DBA (such as an MSLB) is the same as the leak rate during normal operation. However, it is important to ensure that neither of these limits are exceeded. As a result, it may be necessary to ensure that the operational leak rate is kept well below the operational leak rate limit since the leak rate experienced during a DBA may be higher than that observed during normal operation. This increase in leak rate can be a result of either: (1) the higher differential pressure associated with a DBA causing the leak rate from flaws leaking during normal operation to leak at higher rates or (2) the higher loadings associated with a DBA causing a flaw that was not leaking during normal operation to leak during the accident.

Although the operating experience with SGs at Calvert Cliffs (and with similarly designed SGs) has been good, it is possible in the future that operating leakage will be observed and that the licensee may be postulating observed leakage during a DBA. As a result, even with the response to leakage outlined in the November 29, 2005, letter, it is not clear that the licensee will not exceed the accident-induced leakage limit (which historically has been used to include both operating leakage and accident-induced leakage). For example, if a licensee was projecting to observe an accident-induced primary-to-secondary leak rate of 30 gpd and had a current 40 gpd operational primary-to-secondary leak rate, the leak rate during DBAs could be greater than 100 gpd. This is because the operational primary-to-secondary leak rate may double to 80 gpd due to the increase in the differential pressure associated with the accident. When this leakage is combined with your projected accident-induced leak rate of 30 gpd, the total leak rate during the DBA would be 110 gpd, which is greater than that assumed in the DBA analysis. The NRC staff notes that it is most likely not feasible using current technology to ascertain whether the operating leak rate is a result of flaws also projected to leak during a DBA.

Discuss the licensee's plans to:

a. Use the industry accepted definition of accident-induced leakage and modify the proposed TS Bases to be consistent with this definition. If the industry accepted definition will not be used, discuss the plans for modifying the proposed accident-induced leakage rate limit to account for operational leakage.

b. Modify plant procedures to ensure that the accident-induced leak rate limit will not be exceeded as a result of the higher leak rates that may be observed during a DBA (as a result of inducing "new" leakage or as a result of the higher driving force for leakage). Alternatively, discuss any plans (including the technical basis) for modifying the normal operating and accident-induced leakage limit to address these effects.

2. In the table on Page 2 of the September 21, 2005, application, the operational primary-to-secondary leakage limit and accident-induced primary-to-secondary leakage limit are provided. Both limits are 100 gpd per SG measured at room temperature. In November 29, 2005, letter, the operational and accident-induced primary-to-secondary leakage limits are 100 gpd per SG measured at hot plant conditions. Discuss this apparent discrepancy.

Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2

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