

**Constellation Energy**  
Generation Group

May 2, 2007

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  
Revision to Generic Letter 2004-02 Response

**REFERENCES:**

- (a) Letter from Mr. J. E. Pollock to Document Control Desk (NRC), dated November 29, 2005, Supplemental Response to NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized Water Reactors"
- (b) Letter from Mr. P. D. Milano to Mr. J. A. Spina (CCNPP), dated December 18, 2006, Approval of Extension Request for Completion of Corrective Actions in Response to Generic Letter 2004-02 (TAC No. MC4672)
- (c) NEI 04-07, Pressurized Water Reactor (PWR) Sump Performance Methodology, dated May 28, 2004

The purpose of Reference (a) was to supplement our response to Generic Letter 2004-02 to address issues raised by the Nuclear Regulatory Commission (NRC) at a public meeting on September 30, 2005. As part of the efforts to resolve Generic Safety Issue-191, the NRC has conducted tests at Argonne National Labs to determine the magnitude of the impact of chemical precipitation which might occur in the containment sump pool during post-loss-of-coolant accident (LOCA) recirculation. One of the tests examined the interaction of calcium-silicate insulation with a Trisodium Phosphate (TSP) sump pool buffer agent. The results showed that a chemical precipitant did form and the impact on strainer headloss was significant. Those plants containing both calcium-silicate insulation and TSP buffering agent were identified by the NRC/Nuclear Energy Institute (NEI) as needing to address the impact of this result on plant operability including the need to implement additional compensatory measures.

Calvert Cliffs Units 1 and 2 were among the plants identified as having calcium-silicate insulation and TSP buffering agent. In Reference (a) we stated that, "... Calvert Cliffs has no calcium-silicate insulation in the zone of influence of the LOCA break; therefore, per NEI 04-07 ... no calcium-silicate insulation will be destroyed during the LOCA, and thus none will transport to the containment sump pool. Since there is no calcium-silicate insulation in our containment sump pool the results of the Argonne National Labs chemical effects testing has no impact on plant operability." This information was based on a walkdown of Unit 1 during the 2004 refueling outage. That walkdown did not identify any calcium-silicate insulation in the zone of influence of a Reactor Coolant System (RCS) pipe break. Based on the

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design and construction similarity of the Units, it was believed that Unit 2 also would not contain any calcium-silicate insulation in the zone of influence of an RCS pipe break.

However, insulation inspections performed during the Unit 2 2007 refueling outage showed some Unit 2 piping did have calcium-silicate insulation in the zone of influence for an RCS pipe break. Therefore, in accordance with 10 CFR 50.9(a) we are providing this updated information.

Reference (a) was used to support the approval of our extension request for the completion of corrective actions in response to Generic Letter 2004-02 for Unit 1 only (Reference b). The information originally supplied is still correct for Unit 1, based on the 2004 walkdown of the Unit 1 Containment. Therefore, we believe that the updated information provided below has no impact on the previously granted extension.

#### Updated information for Unit 2

In accordance with Section 3.4.2.2 of NEI 04-07 (Reference c), we identified the zone of influence (17 L/D) for the insulation in Containment having the minimum destruction pressure (unjacketed insulation) and applied this to all insulation types. As stated in NEI 04-07, "this approach provides a conservatively large value for debris generation." Walkdowns in Unit 2 during the 2007 refueling outage inspected areas within this large zone of influence for insulation and specifically calcium-silicate insulation. The walkdowns identified calcium-silicate insulation on the pressurizer relief valve lines in the pressurizer compartment and on two steam generator blowdown lines near the lower level of Containment. The calcium-silicate insulation was jacketed and the insulation jacket was held on with rivets. Other lines were identified which had calcium-silicate insulation but they are in areas that would not be impacted by an RCS pipe break.

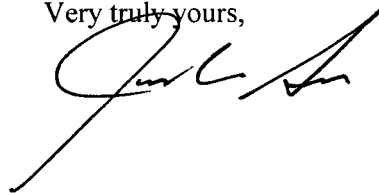
It has also been determined from NEI 04-07 that insulation with banded jacketing has a zone of influence of only 5.45 L/D. We contacted the source of this information and were told that the published data was for bands spaced 8 1/4" apart. They also informed us that additional tests were done with the bands spaced 2 3/4" apart and a zone of influence of 4 L/D was obtained. Therefore, during the 2007 Unit 2 refueling outage, bands spaced at 6" were placed on the calcium-silicate insulation greater than 10 pipe diameters from an RCS pipe break, and bands spaced at 2 3/4" were placed on calcium-silicate insulation between a distance of 4 and 10 pipe diameters. In addition, all identified calcium-silicate insulation less than 4 L/D from the RCS piping was replaced with either fiberglass or Temp Mat insulation. Therefore, the calcium-silicate insulation within the zone of influence of RCS piping has either been eliminated or armored such that there is no longer any identified calcium-silicate insulation that could get damaged and washed to the containment sump during a LOCA. The banding and removal of calcium-silicate insulation which occurred during the 2007 refueling outage results in an operable containment sump.

An operability evaluation was performed to assess the past operability of the containment sump with calcium-silicate insulation with riveted jacketing (pre Unit 2 refueling outage). The evaluation determined that the location and inherent strength of the insulation with riveted jacketing would limit the amount of insulation impacted by an RCS break. Therefore, the evaluation concluded that past operability of Unit 2 was not affected by the discovered calcium-silicate insulation.

We understand that calcium-silicate insulation and its interaction with trisodium phosphate, as well as other chemical effects, are the subject of continued study by the NRC and the industry. We continue to evaluate the information provided by these efforts to determine the best course of action to ensure the continued operability of our containment sumps.


Should you have questions regarding this matter, please contact Mr. Jay S. Gaines at (410) 495-5219.

Very truly yours,



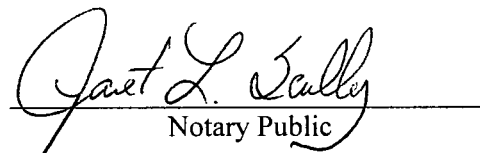
STATE OF MARYLAND :  
: TO WIT:  
COUNTY OF CALVERT :

I, James A. Spina, being duly sworn, state that I am Vice President - Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP), and that I am duly authorized to execute and file this response 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.

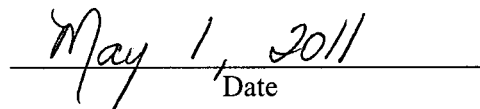


Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of St. Mary's, this 2<sup>nd</sup> day of May, 2007.

**WITNESS** my Hand and Notarial Seal:

  
Notary Public

My Commission Expires:

  
Date

JAS/PSF/bjd

cc: D. V. Pickett, NRC  
S. J. Collins, NRC

Resident Inspector, NRC  
R. I. McLean, DNR