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10 CFR 50.4
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September 25, 2008

UN#08-036

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Submittal of Response to Requests for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3 – Analysis Procedures

Reference: John Rycyna (NRC) to G. Wrobel (UniStar), "Calvert Cliffs Unit 3 COLA
RAI No. 8 SEB2 694," dated August 26, 2008

The purpose of this letter is to respond to requests for additional information (RAIs) identified in the NRC e-mail correspondence to UniStar Nuclear, dated August 26, 2008 (Reference). These RAIs address analysis procedures for flooding and tornado missile protection as addressed in Sections 3.4.2 and 3.5.1.4 of the Final Safety Analysis Report as submitted in the Calvert Cliffs Nuclear Power Plant (CCNPP), Unit 3 Combined License Application (COLA).

The enclosures provide responses to the RAIs and identify changes that will be made in future revisions of the CCNPP Unit 3 COLA.

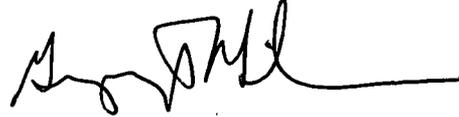
If there are any questions regarding this transmittal, please contact me or Mr. George Wrobel at (585) 771-3535.

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I declare under penalty or perjury that the foregoing is true and correct.

Executed on September 25, 2008

A handwritten signature in black ink, appearing to read 'Greg Gibson', with a long horizontal line extending to the right.

Greg Gibson

Enclosure: Response to RAI Set Number 8, SEB2 694

cc: U.S. NRC Region I
U.S. NRC Resident Inspector, Calvert Cliffs Nuclear Power Plant, Units 1 and 2
NRC Environmental Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Combined License Application
NRC Project Manager, U.S. EPR Design Certification Application (w/o enclosure)

Enclosure

Response to RAI Set Number 8, SEB2 694

RAI Item Number 03.04.02-1

Section 3.4.2 of CCNPP Unit 3 COL FSAR describes the external flood protection, which incorporated the U.S. EPR FSAR by reference with several departures. Essential Service Water Cooling Tower 1 and Emergency Power Generating Buildings were identified as having ground water tables exceeding the U.S. EPR design limit (specified as at least 3.3 ft (1 m) below grade). The applicant stated that a calculation demonstrated that these structures can still perform the safety functions with the ground water at this elevation; however, the summary of the relevant calculation is located in Sections 3.8.5.5.2 and 3.8.5.5.3. The staff requests that in describing the calculation which demonstrates that the exceedance of the ground water table will not cause internal flooding of these structures and the resulting additional buoyancy load will not induce any basemat uplifting, considering different load combinations (e.g., seismic), provide cross-reference to respective paragraphs of Sections 3.8.5.5.2 and 3.8.5.5.3.

Response:

The FSAR will be revised, as cited below, to include cross references to the FSAR sections that document the summary of the calculations demonstrating that the Emergency Power Generating Buildings 1 and 2 can perform their safety function with ground water in exceedance of the U.S. EPR FSAR design limit.

The paragraph in Section 3.4.2 of CCNPP Unit 3 COL Application, will be revised to append the text, shown in bold below:

- While the water table averages approximately 4.0 ft (1.2m) below grade at the Essential Service Water Cooling Tower 1, the ground water under some areas of this structure is less than 3.3 ft (1m) below grade. This does not comply with the U.S. EPR design ground water level of 3.3 feet (1 m) below grade. A calculation demonstrated that the Essential Service Water Cooling Tower 1 can still perform its safety-related function with the ground water at this elevation. **The results of the calculation are discussed in Section 3.8.5.5.3.**
- The Emergency Power Generating Buildings 1 and 2 are located approximately 3.0 ft (0.9m) above ground water level. This does not comply with the U.S. EPR design ground water level of 3.3 feet (1 m) below grade. A calculation demonstrated that the Emergency Power Generating Buildings 1 and 2 can still perform its safety-related function with the ground water at this elevation. **The results of the calculation are discussed in section 3.8.5.5.2.**

FSAR Impact:

The FSAR will be updated as shown above in a future revision.

RAI Item Number 03.04.02-2

Section 3.5.1.4 of CCNPP Unit 3 COL FSAR identified Category I structures: Safeguard Buildings (SB) 1 and 4 not having barriers for protection against tornado generated automobile missile impact loads; however, the FSAR stated that all wall and roof slab sections of these structures meet the minimum acceptable tornado missile barrier guidance of SRP 3.5.3. SRP 3.5.3 (II) SRP Acceptance Criteria 1 provides the methods for prediction of local damage due tornado generated missiles, including a list of empirical equations for determining the required barrier thicknesses. SRP 3.5.3 also provides minimum acceptable barrier thickness requirements as listed in TABLE 1. The thickness of concrete structures against tornado generated missiles should be determined based on empirical equations, and the calculated thickness should no be less than that specified in TABLE 1. The staff requests that the applicant provide an assessment of the structural capacity of these structures for protection against tornado generated missiles based on the empirical equations of SRP 3.5.3, and check the calculated structural thickness against TABLE 1 of SRP 3.5.3.

Response:

The U.S. EPR concrete wall and roof slab sections were evaluated to determine minimum missile barrier requirements. The local damage prediction using the empirical equations in SRP 3.5.3 (II) Acceptance Criteria 1 was used to establish the required barrier thicknesses for the design basis tornado generated missiles specified in Regulatory Guide 1.76. Based on the evaluation, the calculated minimum thickness requirements for concrete missile barrier protection are 21 inches for walls, and 17 inches for roof slabs. Therefore, the calculated minimum barrier thicknesses for the U.S. EPR are greater than those required by Table 1 of SRP 3.5.3 (i.e. 21" vs. 16" in Table 1 for walls, and 17" vs. 11.7" in Table 1 for roof slabs). Actual wall and roof slabs of the U.S. EPR Safeguards Buildings exceed the calculated minimum tornado missile barrier requirements (i.e., greater than the 21" calculated for walls and 17" calculated for roof slabs) as shown in the dimensional arrangement drawings in the U.S. EPR FSAR Appendix 3B.

This U.S. EPR evaluation was based on Region 1 missile requirements and a concrete strength of 5000 psi and therefore is bounding for all regions.

FSAR Impact:

No FSAR changes are required.