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10 CFR 50.4
10 CFR 52.79

August 12, 2010

UN#10-226

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

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Calvert Cliffs Nuclear Power Plant, Unit 3,
Impact of U.S. EPR FSAR RAI Responses on CCNPP Unit 3 FSAR Section 3.7

Reference: 1) UniStar Nuclear Energy letter UN#10-074 from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for Calvert Cliffs Nuclear Power Plant, Unit 3, Impact of U.S. EPR FSAR RAI Responses on CCNPP Unit 3 FSAR Section 3.7, dated March 15, 2010

2) Martin Bryan (AREVA NP) email to Getachew Tesfaye (U.S. NRC), Response to EPR Design Certification Application RAI No. 320, FSAR Ch 3, Supplement 1, dated June 21, 2010.

As discussed in Reference 1, AREVA NP is updating the seismic analyses presented in U.S. EPR Final Safety Analysis Report (FSAR), Tier 2, Sections 3.7, 3.8, and Appendix 3E to address U.S. EPR FSAR requests for additional information (RAIs), and other identified issues. As a result of these activities, changes to the U.S. EPR FSAR are in process to:

- Change the dynamic model for the Nuclear Island (NI) to an embedded finite element model (FEM) from a surface-founded stick model.
- Add a 4th certified seismic design response spectra (CSDRS) curve to address the high frequency content at Bell Bend Nuclear Power Plant.
- Rework the Critical Sections in Appendix 3E to resolve concerns associated with the selection of Critical Sections.

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The SSE at Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 is typically much smaller than the CSDRS curves presented in the U.S. EPR FSAR. It is therefore unlikely that changes to the response spectra presented in the U.S. EPR FSAR will result in any changes to the conclusions presented in the CCNPP Unit 3 FSAR for the NI common basemat structures [including the Nuclear Auxiliary building (NAB) and Radioactive Waste Processing Building (RWPB)]. However, text describing information in the U.S. EPR FSAR and figures that compare CCNPP Unit 3 data to U.S. EPR data will need to be updated in the CCNPP Unit 3 FSAR.

For the Emergency Power Generating Buildings (EPGBs) and Essential Service Water Buildings (ESWBs), the seismic input is based on a response spectra that has been amplified to account for structure-to-soil-to-structure interaction (SSSI) from the NI. The expectation is that the input motion that was used bounds the SSSI effects produced by the embedded NI model. A statement to that effect will be added to CCNPP Unit 3 FSAR Section 3.7.

Several other initiatives are also underway that will affect CCNPP Unit 3 FSAR Section 3.7. Additional information is being added to address interaction of Category II structures (i.e., Auxiliary Building and Turbine Island) with nearby Category I structures. Additionally, the Seismic Category II-SSE seismic design classification is being eliminated (the Fire protection Building and Tanks will become conventional seismic), and the free field acceleration sensor will be relocated.

In summary, it has been determined that the previously described changes to the U.S. EPR FSAR will result in changes to the following CCNPP Unit 3 FSAR 3.7 subsections and figures:

Subsection	Impact
3.7.1.1.1.1	The first sentence in subsection "Development of FIRS" will change since embedment will be addressed in the NI common Basemat Structures analysis.
3.7.1.1.1.2	This section will be updated to address the amplified motion used for the analysis of the ESWB and EDGB and will provide a comparison to the SSSI based motion.
3.7.1.1.2.1	The first sentence will change since embedment will be addressed in the NI common Basemat Structures analysis.
3.7.1.3.1	The last paragraph is not expected to change, however the supporting calculations behind the conclusion of "bounded" will change.
3.7.2	The text of the second bullet will change to identify the number of soil cases used in the revised U.S. EPR FSAR.
3.7.2.3.3	This section will change to eliminate the Category II-SSE classification and to expand the text describing the design and analysis of the Category II structures.
3.7.2.4.2.1	This paragraph is not expected to change, confirmatory analysis will still be done in the same method as the U.S. EPR FSAR. However, since the U.S. EPR model is changing, the confirmatory analysis will need to be re-performed.
3.7.2.4.4.1	This paragraph is not expected to change, confirmatory analysis will still be done in the same method as the U.S. EPR FSAR. However, since the U.S. EPR model is changing the confirmatory analysis will need to be re-performed.

Subsection	Impact
3.7.2.4.5.1	This paragraph is not expected to change, confirmatory analysis will still be done in the same method as the U.S. EPR FSAR. However, since the U.S. EPR model is changing, the confirmatory analysis will need to be re-performed.
3.7.2.4.7	The cited computer code will change.
3.7.2.5.1	This section will be updated. Numerical references to figures and tables in the U.S. EPR will likely change. All the internally cited figures (3.7-28 through 3.7-66) will be revised as well. However, the underlying conclusion that the site specific response is enveloped by the U.S. EPR FSAR is not expected to change. Also, the Vent Stack will be reclassified as Seismic Category I.
3.7.2.5.2	In the first paragraph, the references to figure and tables in the U.S. EPR FSAR are expected to change based on the changes to the U.S. EPR FSAR.
3.7.2.6	This section will be revised to update the use of the "100-40-40" approach and the Square Root of Sum of Squares (SRSS) approach.
3.7.2.8	This section will be updated to address the reclassification of the vent stack, the approach for the design and analysis of the Seismic Category II Turbine Island and Access building, the elimination of the Seismic Category II-SSE category. The vent stack will be removed from the text that lists the non-Seismic Category I structures that interact with Seismic Category I structures. The vent stack is being reclassified as Seismic Category I.
3.7.4.2.1	This section will change to address the relocation of the free-field acceleration sensor.
Figure 3.7-4 through Figure 3.7-7	A 4 th (Bell Bend based) CSDRS curve will be added. No change to CCNPP Unit 3 information.
Figure 3.7-23	The U.S. EPR FSAR soil cases will change. No change to the CCNPP Unit 3 data.
Figure 3.7-28 through Figure 3.7-54	Both the EPR design spectra and the CCNPP Unit 3 responses will change but changes will be similar and proportional.
Figure 3.7-55 through Figure 3.7-66	These curves need to be regenerated based upon the new finite element model.

The impact of the changes to the U.S. EPR FSAR on RAI responses that were previously provided for CCNPP Unit 3 FSAR Section 3.7 was also reviewed. This assessment concluded that the following RAI questions will require an updated response.

RAI	Question	Previous Response
58	03.07.01-1	UN#09-388
58	03.07.01-2	UN#09-320
179	03.07.01-14	UN#09-519
65	03.07.02-18	UN#09-228 and UN#09-388
65	03.07.02-24	UN#09-388

Recently issued RAIs 252 and 253 have questions regarding the Category II-SSE buildings, interaction of Category II structures with nearby Category I structures, and additional questions on the analytical approach used for the EPGBs and ESWBs. The responses to these questions will be consistent with the updated seismic analysis and the planned update to FSAR Section 3.7 discussed herein.

As stated above, the CCNPP Unit 3 FSAR reconciliation is predicated on the completion of the engineering and analysis needed by AREVA NP to respond to the U.S. EPR FSAR RAIs. Reference 1 anticipated a completion date of September 21, 2010 based on an AREVA NP completion date of June 21, 2010. The U.S. EPR FSAR RAI 320 response is now projected to be completed on January 13, 2011 (Reference 2). It is anticipated that the CCNPP Unit 3 FSAR update will be completed approximately three months after the U.S. EPR FSAR reanalysis. Based upon the above, the CCNPP Unit 3 FSAR update and revised RAI responses will be provided to the NRC on or before March 31, 2011.

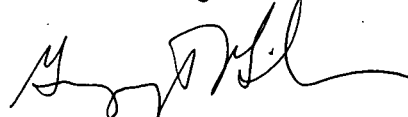
Finally, the changes being made in the U.S. EPR FSAR for the NI common basemat structures will not affect the CCNPP Unit 3 Ultimate Heat Sink (UHS) Makeup Water Intake Structure and the UHS Electrical Building. However, UniStar Nuclear Energy intends to separately transmit a design change that relocates equipment within the UHS Electrical Building to a new room located on top of the UHS Makeup Water Intake Structure. The intent of this change is to reduce the potential for flooding from storm surge associated with a probable maximum hurricane. This design is being finalized and an update to the affected portions of CCNPP Unit 3 FSAR Section 3.7 will be submitted by October 22, 2010.

This letter does not include any new regulatory commitments. This letter does not contain any sensitive or proprietary information.

If there are any questions regarding this transmittal, please contact me at (410) 470-4205, or Mr. Wayne A. Massie at (410) 470-5503.

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

Executed on August 12, 2010



Greg Gibson

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
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