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September 12, 2011

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

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI 309, Structural and Systems Engineering - Inspections, Tests, Analyses, and
Acceptance Criteria

References: 1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL
RAI 309 SEB2 5750, dated May 23, 2011.

2) UniStar Nuclear Energy Letter UN#11-240, from Greg Gibson to Document
Control Desk, U.S. NRC, RAI Closure Plan, dated August 23, 2011

The purpose of this letter is to respond to the request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear Energy, dated May 23, 2011 (Reference 1). This RAI addresses Structural and Systems Engineering - Inspections, Tests, Analyses, and Acceptance Criteria, as discussed in Section 14.3.2 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 7.

Reference 2 provided a response date of September 15, 2011, for RAI Question 14.03.02-18.

The Enclosure provides our response to RAI No. 309 Question 14.03.02-18, and includes revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA.

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NRD

There are no regulatory commitments identified in this letter. This letter does not contain any proprietary or sensitive 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 September 12, 2011

A handwritten signature in black ink, appearing to read 'Greg Gibson', with a stylized, cursive script.

Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI No. 309, Question 14.03.02-18, Structural and Systems Engineering - Inspections, Tests, Analyses, and Acceptance Criteria, Calvert Cliffs Nuclear Power Plant, Unit 3

cc: Surinder Arora, NRC Project Manager, U.S. EPR Projects Branch
Laura Quinn, NRC Environmental Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application
Charles Casto, Deputy Regional Administrator, NRC Region II
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

Enclosure

**Response to NRC Request for Additional Information RAI No. 309,
Question 14.03.02-18, Structural and Systems Engineering –
Inspections, Tests, Analyses, and Acceptance Criteria,
Calvert Cliffs Nuclear Power Plant, Unit 3**

RAI No. 309

NRC Question 14.03.02-18

The staff reviewed the response to Question 14.03.02-2 K (Item 5) provided in UniStar Letter UN#10-217, dated August 6, 2010 (ML102230156). The response indicates that Items with ITAAC information related to the waterproof membrane for buried duct banks or waterproof wrapping or coating for buried pipes have been deleted from Table 2.4-9 in Rev. 6 of CCNPP Unit 3 ITAAC (now ITAAC Table 2.4-8 in Rev. 7) because the waterproofing system (membrane, wrapping or coating) does not serve a safety-related function as discussed in the response to Question 14.03.02-2 Item G in the same letter. The ITAAC Table 2.4-9 in Rev. 6 (now ITAAC Table 2.4-8 in Rev. 7) is for Category I buried duct banks and pipes.

The staff notes that, for buried duct banks and buried concrete pipes, it is acceptable not to include ITAAC information related to the waterproofing membrane in the ITAAC table, considering that the durability of below-grade concrete against aggressive groundwater will be achieved by using a low water/cementitious ratio and supplementary cementitious materials; however, for buried steel pipes/conduits, the waterproofing system (wrapping or coating) that is provided will be the only protection against the detrimental effects of aggressive groundwater. Since for such cases, the waterproofing membrane does serve a safety related function, it should be confirmed by ITAAC that such wrappings or coatings have been properly installed for the buried steel pipes/conduits.

Based on the above discussion, the staff requests that the applicant provide in ITAAC Table 2.4-8 in FSAR Rev. 7, ITAAC information related to the waterproofing wrapping or coating for buried steel pipes/conduits. The wording used in Item No. 8 of Table 2.4-9 in Rev. 6 of CCNPP Unit 3 ITAAC would be acceptable to the staff. The staff needs this information to be able to conclude in the SER that adequate ITAAC is proposed and there is reasonable assurance that adequate ITAAC, including the waterproofing system for buried steel pipes/conduits in aggressive groundwater will be implemented pursuant to 10 CFR 52.80(a).

Response

The response to Part 3 of RAI 144 Question 03.08.04-12¹, describes the criteria for selection, evaluation, inspection, and acceptance for the protective wrappings and coatings for the buried Seismic Category I steel/iron pipes. As described in response to Part 3 of RAI 144 Question 03.08.04-12¹, the inspection and acceptance of the protective wrappings and coatings will be performed in accordance with applicable industry standards. COLA Part 10, Revision 7, Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Table 2.4-8, "Buried Conduit and Duct Banks, and Pipe and Pipe Ducts Inspections, Tests, Analyses, and Acceptance Criteria," will be updated to include the ITAAC requirement for the protective wrappings and coatings for the buried Seismic Category I steel/iron pipes.

¹ UniStar Nuclear Energy Letter UN#10-193, from Greg Gibson to Document Control Desk, U.S. NRC, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 144, Other Seismic Category I Structures, and RAI No. 145, Foundations, dated July 23, 2010

As stated in COLA FSAR Subsection 3.8.4.1.8, no Seismic Category I buried conduits exist for CCNPP Unit 3. Therefore, ITAAC information for the wrapping/coating for buried steel conduits is not applicable.

COLA Impact

COLA Part 10 ITAAC Table 2.4-8 will be revised as follows (only the impacted portions are shown):

Table 2.4-8—{Buried Conduit and Duct Banks, and Pipe and Pipe Ducts Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Tests, or Analysis	Acceptance Criteria
1	<p>Seismic Category I buried electrical conduit and duct banks traverse (See FSAR Figures 3.8-1 and 3.8-2):</p> <p>a. from each Essential Service Water Building to the UHS Makeup Water Intake Structure.</p> <p>b. from the Safeguards Buildings to the four Essential Service Water Buildings and from the Safeguards Building to both Emergency Power Generating Buildings.</p>	<p>Inspections of the as-built buried Seismic Category I electrical conduit and duct banks will be conducted.</p>	<p>A report exists and concludes that the as-built Seismic Category I buried electrical conduit and duct banks traverse:</p> <p>a. from each Essential Service Water Building to the UHS Makeup Water Intake Structure.</p> <p>b. from the Safeguards Buildings to the four Essential Service Water Buildings and from the Safeguards Building to both Emergency Power Generation Buildings.</p>
...			
7	<p>The buried Seismic Category I conduit and duct banks, and pipe and pipe ducts provide separation between divisions of systems.</p>	<p>a. Analyses will be performed on the buried Seismic Category I electrical conduit and duct banks, and pipe and pipe ducts.</p> <p>b. Inspections will be performed to verify that the as-built buried conduit and duct banks, and pipe and pipe ducts are constructed and installed as specified on the construction</p>	<p>a. A report exists that concludes buried Seismic Category I electrical conduit and duct banks, and pipe and pipe ducts are designed to provide separation between divisions of systems.</p> <p>b. Inspection reports exist and conclude that the as-built buried conduit and duct banks, and pipe and pipe ducts are constructed and installed as specified on the construction drawings and deviations have been</p>

		drawings and deviations will be reconciled to analyses.	reconciled to analyses.
<u>8</u>	<u>Protective measures for buried Seismic Category I steel/iron pipes include protective waterproof wrapping or coating.</u>	<u>An inspection of the as-built steel/iron piping will be conducted.</u>	<u>A report exists that concludes that the as-built buried Seismic Category I steel/iron pipes are protected by a protective waterproof wrapping or coating.</u>