

Greg Gibson  
Senior Vice President, Regulatory Affairs

750 East Pratt Street, Suite 1600  
Baltimore, Maryland 21202



10 CFR 50.4  
10 CFR 52.79

March 22, 2011

UN#11-111

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 294, Environmental Qualification

- References:
- 1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL RAI 294 EEB 5379" email dated February 18, 2011
  - 2) UniStar Nuclear Energy Letter UN#11-105, from Greg Gibson to Document Control Desk, U.S. NRC, Submittal of Response to RAI 294, Environmental Qualification, dated March 21, 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 February 18, 2011 (Reference 1). This RAI addresses Environmental Qualification, as discussed in Section 3.11 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 schedule for the response to RAI 294, Question 03.11-6. The enclosure provides our response to RAI 294, Question 03.11-6, 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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NRC

Our response 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 March 22, 2011



on behalf of Vincent SORREL  
Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI 294, Question 03.11-6,  
Environmental Qualification, 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 (w/o enclosure)  
Charles Casto, Deputy Regional Administrator, NRC Region II (w/o enclosure)  
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2  
U.S. NRC Region I Office

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**Enclosure**

**Response to NRC Request for Additional Information  
RAI 294, Question 03.11-6, Environmental Qualification,  
Calvert Cliffs Nuclear Power Plant, Unit 3**

**RAI 294**

**Question 03.11-6**

In COL Information Item 3.11-2 for CCNPP Unit 3 in Section 3.11, the supplemental information includes a paragraph: "Regulatory Guide 1.131, "Qualification Tests of Electric Cables and Field Splices for Light-Water-Cooled Nuclear Power Plants" (NRC, 1977) endorses IEEE Std 383-1974, "Standard for Type Test of Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations" (IEEE, 1974). These documents contain guidance for the environmental qualification of Class 1E electric cables and field splices, and will be used in conjunction with Regulatory Guide 1.89 (NRC, 1984), as appropriate, for evaluating the environmental qualification of Class 1E electric cables and field splices for site-specific portions of {UHS Makeup Water System} and Fire Protection System." For the qualification tests for power cables and field splices, subsection 3.11.2.3.6 of Section 3.11 of U.S. EPR FSAR Tier 2, references RG 1.211, "Qualification of Safety-Related Cables and Field splices for Nuclear Power Plants," that endorses the latest IEEE Std 383-2003, "IEEE Standards for Qualifying Class 1E Electric Cables and Fielded Splices for Nuclear Power Plants." The EPR FSAR also provides the basis for using RG 1.211 versus RG 1.131. Please clarify whether Section 3.11 is consistent with EPR FSAR with respect to RG 1.211, and explain the purpose for the inclusion of RG 1.131 in COL Information Item 3.11-2.

**Response**

As U.S. EPR FSAR Section 3.11.2.3.6 references the regulatory guidance to be used for the qualification tests for power cables and field splices, and COLA FSAR Section 3.11 incorporates U.S. EPR FSAR Section 3.11 by reference, providing separate references to the regulatory guidance with the COLA is unnecessary. Therefore, the references to RG 1.131 and IEEE Std 383-1974 will be removed from COLA FSAR Section 3.11.1.1.3.

**COLA Impact**

FSAR Section 3.11.1.1.3 is being updated as follows:

**3.11.1.1.3      Equipment Review and Screening**

The U.S. EPR FSAR includes the following COL Item in Section 3.11.1.1.3:

A COL applicant that references the U. S. EPR design certification will identify additional site-specific components that need to be added to the environmental qualification list in Table 3.11-1.

This COL Item is addressed as follows:

Table 3.11-1 provides the list of additional site-specific components to add to the equipment list in U.S. EPR FSAR Table 3.11-1. {It includes the safety-related and augmented quality items of the site-specific portion of the UHS Makeup Water System and Fire Protection System.} The cable types listed are typical of those which are anticipated to be utilized throughout the plant in safety-related applications, including those which are site-specific. However, the function and location related columns in the attached table entries are for site-specific applications only. The

environmental qualification parameters shown in the attached table are based on the criteria described in U.S. EPR FSAR Section 3.11.

~~Regulatory Guide 1.131, "Qualification Tests of Electric Cables and Field Splices for Light-Water-Cooled Nuclear Power Plants" (NRC, 1977) endorses IEEE Std 383-1974, "Standard for Type Test of Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations" (IEEE, 1974). These documents contain regulatory guidance identified in U.S. EPR FSAR Section 3.11.2.3.6 for the environmental qualification of Class 1E electric cables and field splices, and will be used in conjunction with Regulatory Guide 1.89 (NRC, 1984), as appropriate, for evaluating the environmental qualification of Class 1E electric cables and field splices for site-specific portions of {UHS Makeup Water System} and Fire Protection System. Site-specific safety-related cables and components will be procured in accordance with these standards and regulations as appropriate.~~

There are six primary types of cable: Medium voltage power, low voltage power, low voltage control, shielded instrumentation, thermocouple extension and fiber optic communication cable. Medium and low voltage power cables, low voltage control cables and shielded instrumentation cables will be rated at 90°C in accordance with ICEA Standards. Thermocouple extension cable is intended for measuring service and will employ insulation rated at 300 VAC minimum.

Fiber optic communication cable may be employed in the safety-related site-specific portion of the {UHS Makeup Water System}.

FSAR Section 3.11.7 is being updated as follows:

### **3.11.7           References**

~~{IEEE, 1974. Standard for Type Test of Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations, IEEE Std 383-1974, IEEE, 1974.~~

~~NRC, 1977. Qualification Tests of Electric Cables and Field Splices and Connections for Light-Water-Cooled Nuclear Power Plants, Regulatory Guide 1.131, U.S. Nuclear Regulatory Commission, August 1977.~~

**NRC, 1984.** Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants, Regulatory Guide 1.89, Revision 1, U.S. Nuclear Regulatory Commission, June 1984.}