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November 11, 2009

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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 No. 187, Initial Plant Test Program

Reference: Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL RAI  
No 187 CQVP 3546" email October 16, 2009

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 October 16, 2009 (Reference). This RAI addresses the Initial Plant Test Program, as discussed in Section 14.2 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 6.

The enclosure provides our response to RAI No. 187, Question 14.02-54, 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.

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

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If there are any questions regarding this transmittal, please contact me at (410) 470-4205, or Mr. Michael J. Yox at (410) 495-2436.

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

Executed on November 11, 2009

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

Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI No. 187, Question 14.02-54, Initial Plant Test Program, 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)  
Loren Plisco, 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 No. 187, Question 14.02-54, Initial Plant Test Program,  
Calvert Cliffs Nuclear Power Plant, Unit 3**

**RAI No. 187**

**Question 14.02-54**

In RAI 9.05.02-1, the NRC staff requested that the applicant demonstrate that the portable wireless communication system used in the Ultimate Heat Sink (UHS) Makeup Water Intake Structure and the UHS Electrical Building are not susceptible to an excess noise level, electromagnetic interference (EMI), and radio frequency interference (RFI). In response to RAI 9.05.02-1, the applicant revised Section 14.02 to include a test of the UHS makeup water structure and UHS electrical building communication system in Subsection 14.02.14.12. Section 14.02.14.12 tests the two site specific communication locations described in Section 9.5.2.3 of the CCNPP Unit 3 FSAR, for which the design bases and system description are provided in Section 9.5.2 of the US EPR FSAR.

RG 1.68, Appendix C, Preparation of Procedures, 1.b., "Test Objectives," states that objectives of the test should be stated. Many systems tests will be intended to demonstrate that each of several initiation events will produce one or more expected responses. These initiating events and the corresponding responses should be identified.

SRP 14.2.II.SRP Acceptance Criteria.5.B states that test abstracts for the initial test program should include acceptance criteria in sufficient detail to establish the functional adequacy of the SSCs and design features tested. RG 1.68 Appendix C.1.f., "Acceptance Criteria," states that the test procedure should clearly identify the criteria against which the success or failure of the test will be judged, and should account for measurement errors and uncertainties.

In addition, Regulatory Guide (RG) 1.68 states, in part, that testing should include, as appropriate, verification of redundancy and electrical independence. Appendix A to RG 1.68 provides a representative list of SSCs that should undergo preoperational testing, which includes the communication systems. As described in Section 9.5.2, the communication system, while non-safety related, is powered by Class 1E power and an isolation device is placed between the non-Class 1E communication system and the Class 1E power supply to provide the required independence. Testing of this feature should be included in the ITP.

Consistent with the above regulatory guidance and Section 14.2.12.11.7, "Communication System (Test #130)," of Revision 1 of the U.S. EPR FSAR, the staff requests that UniStar add the following objectives, test methods, and acceptance criteria to the test of the UHS makeup water structure and UHS electrical building communication systems in Subsection 14.02.14.12 of the CCNPP Unit 3 FSAR or justify their exclusion:

**OBJECTIVES:**

- To demonstrate that the communications system functions as designed to malfunctions or failures
- To demonstrate that the UHS makeup water structure and UHS electrical building communication systems meet design requirements
- To demonstrate electrical independence and redundancy of safety related power supplies

**TEST METHOD:**

- Verify that the communication system responds as designed to actual or simulated limiting malfunctions or failures.

- Verify redundancy and electrical independence of the communication system.
- Verify electrical independence and redundancy of power supplies for safety-related functions by selectively removing power and determining loss of function

#### ACCEPTANCE CRITERIA

- The portable wireless communication system provides radio coverage throughout the plant, except in areas restricted due to potential EMI/RFI considerations
- The portable wireless communication system provides an interconnection to the public switched telephone network (PSTN) to allow offsite communications
- The digital telephone system provides plant-wide intercom capability
- The digital telephone system provides an interconnection to the public switched telephone network (PSTN) to allow offsite communications
- The public address and alarm system operates as described in the design specification.
- The sound powered system operates as described in the design specification
- The security communication system operates as described in the design specification
- Safety-related I&C equipment is not adversely impacted by the portable phones and radios of the communication system
- Safety-related components meet electrical independence and redundancy requirements

#### Response

U.S. EPR FSAR Section 14.2.12.11.7, Revision 1 provides testing to verify the adequacy of intra-plant and offsite communication systems. In response to U.S. EPR Design Certification Application RAI 144, Supplement 1, Question 14.02-72<sup>a</sup>, AREVA NP committed to provide clarification of objectives, test methods and acceptance criteria associated with Communication System Test #130. Following incorporation of the proposed clarifications into the U.S. EPR FSAR, the startup test for the UHS Makeup Water Intake Structure and UHS Electrical Building Communication Systems, currently located in CCNPP Unit 3 FSAR Section 14.2.14.13, will be revised to be consistent with the revised Communication System Test #130 objectives, test methods and acceptance criteria.

#### COLA Impact

FSAR Section 14.2.14.13 will be revised as follows in a future COLA revision following incorporation of the proposed objective, test methods and acceptance criteria into the U.S. EPR FSAR:

#### **14.2.14.13 UHS Makeup Water Intake Structure and UHS Electrical Building Communications System**

##### 1. OBJECTIVES

- a. To demonstrate the adequacy of the UHS Makeup Water Intake Structure and UHS Electrical Building intra-plant communications system to provide communications between vital plant areas.

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<sup>a</sup> R. Pederson (AREVA NP) to G. Tesfaye (NRC), "Response to U.S. EPR Design Certification Application RAI No. 144, FSAR Ch 14, Supplement 1," email dated May 14, 2009.

- b. Verify that non-safety-related communication system functions as designed to limit malfunctions or failures.
- c. To demonstrate that the UHS makeup water structure and UHS electrical building communication systems meet design requirements.

## 2. PREREQUISITES

- a. Construction activities on the intraplant communications system have been completed.
- b. Support systems required for operation of the intraplant communications system are complete and functional.
- c. Plant equipment that contributes to the ambient noise level in the UHS Makeup Water Intake Structure and UHS Electrical Building shall be in operation.

## 3. TEST METHOD

- a. Verify the intraplant portable wireless communication system functions as designed in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- b. Verify that the intraplant (PABX) telephone system functions as designed in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- c. Verify the intraplant sound powered telephone system functions as designed in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- d. Verify the intraplant public address system functions as designed in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- e. Verify the security radio system functions as designed in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- f. Verify that the communication equipment will perform under the anticipated maximum plant noise levels in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- g. Verify the effectiveness of the exclusion zones established for protecting the safety-related I&C equipment from mis-operation due to EMI/RFI effects from the portable phones and radios of the communications system or verify the adequacy of the lack of exclusion zones in the UHS Makeup Water Intake Structure and UHS Electrical Building.
- h. Verify that communication system responds as designed to actual or simulated limiting malfunctions or failures.

## 4. DATA REQUIRED

- a. Record the results of communication attempts from each system and its locations.

5. ACCEPTANCE CRITERIA

- a. The intraplant communication system operates in the UHS Makeup Water Intake Structure and UHS Electrical Building to the same level of performance as described in the U.S. EPR FSAR Section 9.5.2.
- b. The communications equipment in the UHS Makeup Water Intake Structure and UHS Electrical Building is capable of operating under maximum noise conditions.
- c. Safety-related I&C equipment performance is not adversely impacted by the portable phones and radios of the communications system.
- d. The portable wireless communication system provides radio coverage throughout the plant, except in areas restricted due to potential EMI/RFI considerations.
- e. The portable wireless communication system provides an interconnection to the public switched telephone network (PSTN) to allow offsite communications.
- f. The digital telephone system provides plant-wide intercom capability.
- g. The digital telephone system provides an interconnection to the PSTN to allow offsite communications.
- h. The public address and alarm system operates as described in the design specification.
- i. The sound powered system operates as described in the design specification.
- j. The security communication system operates as described in the design specification.