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10 CFR 50.4  
10 CFR 52.79

February 3, 2009

UN#09-105

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. 43, Revision 3 – Protective Coating Systems (Paints) – Organic  
Materials

References: 1) John Rycyna (NRC) to G. Wrobel (UniStar), "RAI No 43 CIB1 1516.doc (P),"  
email dated January 6, 2009

The purpose of this letter is to respond to a request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear, dated January 6, 2009 (Reference 1). This RAI addresses Protective Coating Systems (Paints) – Organic Materials, as discussed in Section 6.1.2 of the Final Safety Analysis Report, as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant Unit 3 Combined License Application (COLA).

The enclosure provides our response to RAI No. 43, Revision 3, Questions 06.01.02-1, 06.01.02-2 and 06.01.02-3. Our response includes revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate the change in a future revision of the COLA. Our response to these RAI questions does not include any new regulatory commitments.

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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 February 3, 2009

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 NRC Request for Additional Information, RAI No. 43, Revision 3,  
Protective Coating Systems (Paints) – Organic Materials

cc: John Rycyna, NRC Project Manager, U.S. EPR COL Application  
Thomas Fredrichs, 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

**Enclosure**

**Response to NRC Request for Additional Information,  
RAI No. 43, Revision 3, Protective Coating Systems (Paints) – Organic Materials,  
Calvert Cliffs Nuclear Power Plant, Unit 3**

**RAI No. 43, Revision 3**

**Question 06.01.02-1**

SRP Section 6.1.2 provides that an acceptable method of complying with 10 CFR Part 50, Appendix B requirements is for the coatings monitoring and maintenance program to satisfy the recommendations of RG 1.54, "Service Level I, II, and III Protective coatings Applied to Nuclear Power Plants." RG 1.54 provides that verification that coatings monitoring and maintenance procedures be capable of ensuring that the coatings will not fail (delaminate from the substrate) and, therefore, become a debris source that could prevent the Emergency Core Cooling System (ECCS) from performing its safety related function. RG 1.54 also recommends ASTM standards that are acceptable to the NRC staff with respect to qualification of safety-related coatings to withstand DBA conditions.

COL Section 6.1.2.3.5 states there are no departures or supplements to DCD Section 6.1.2.3.5, which describes the protective coatings program. However, the staff is currently evaluating exceptions to the guidance of RG 1.54 in U.S. EPR FSAR Section 6.1.2, mostly relating to the use of different year editions of various ASTM coatings standards than those endorsed by RG 1.54. Also, the resolution of COL information item 6.1-2 did not state whether RG 1.54 would be used with respect to qualification of the coatings to be applied to components procured without DBA-qualified coatings. Therefore, the staff requests the following additional information:

1. The applicant should describe in its coatings program the standards to be applied to selection, qualification, procurement, application, inspection, monitoring, and maintenance of the protective coatings. Address whether the standards to be applied are consistent with the guidance of RG 1.54, and, if not, the basis to conclude that the deviation is acceptable.
2. The program description should describe the administrative controls that will be applied to the coatings program.

**Response**

Calvert Cliffs Nuclear Power Plant, Unit 3, Combined License Application (COLA), Part 2, Final Safety Analysis Report (FSAR), Section 6.1.2 incorporates Section 6.1.2 of the U.S. EPR FSAR by reference, including the exceptions noted to RG 1.54 in the U.S. EPR FSAR Section 6.1.2.4. Additional information with regard to the U.S. EPR FSAR can be obtained through requests made to the U.S. EPR Design Certification applicant.

**COLA Impact**

The COLA will not be changed as a result of this question.

**Question 06.01.02-2**

SRP Section 6.1.2 provides that an acceptable method of complying with 10 CFR Part 50, Appendix B requirements is for the coatings monitoring and maintenance program to satisfy the recommendations of RG 1.54, "Service Level I, II, and III Protective coatings Applied to Nuclear Power Plants." RG 1.54 provides that verification that coatings monitoring and maintenance procedures be capable of ensuring that the coatings will not fail (delaminate from the substrate) and, therefore, become a debris source that could prevent the Emergency Core Cooling System (ECCS) from performing its safety related function. RG 1.54 also recommends ASTM standards that are acceptable to the NRC staff with respect to qualification of safety-related coatings to withstand DBA conditions.

In Section 6.1.2 of the CCNPP3 COL, the applicant incorporated by reference without any departures Section 6.1.2 of the U.S.EPR FSAR. Section 6.1.2.3.5 of the U.S.EPR FSAR describes the protective coatings program for the U.S.EPR. The description states, in part that "The procurement and application, or re-application, of new and existing coating systems are monitored through the program with respect to the coating type, service level of qualification required for application in each specific case, service level at which the coating is procured, and the significance and type of application (including information such as coating repair or replacement and resultant coating thickness, including overlapping areas)." No COL information item is currently identified in the U.S.EPR FSAR for the COL applicant to describe the coatings program in detail. However, since the program will control application of new coatings, it is important that the program be in place before any of the activities listed in the description above are performed. Therefore, the staff requests the following additional information:

Provide the schedule for full implementation of the coatings program with respect to major milestones in the construction of the plant; for example, prior to application of coatings, prior to preparation of surfaces to be coated, or prior to procurement of coatings materials.

**Response**

The protective coatings program will be implemented prior to the application of coatings on plant surfaces or equipment or the procurement of components and equipment with vendor applied coatings. The protective coatings program is implemented within plant administrative procedures. The administrative procedures are described in FSAR Section 13.5.1.

## COLA Impact

FSAR Section 6.1.2.3.2, second paragraph, will be revised as follows:

This COL Item is addressed as follows:

If components cannot be procured with DBA-qualified coatings applied by the component manufacturer, {Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services} shall do one of the following:

- Procure the component as uncoated and apply a DBA-qualified coating system in accordance with 10 CFR 50, Appendix B, Criterion IX. The DBA-qualified (i.e., Service Level 1) coating will be applied in accordance with the applicable standards stated in Regulatory Guide 1.54, Rev. 1, except as modified by U.S. EPR FSAR Section 6.1.2.4.
- Confirm that the DBA-unqualified coating is removed and that the component is recoated with DBA-qualified coatings in accordance with 10 CFR 50, Appendix B, Criterion IX. The DBA-qualified (i.e., Service Level 1) coating will be applied in accordance with the applicable standards stated in Regulatory Guide 1.54, Rev. 1, except as modified by U.S. EPR FSAR Section 6.1.2.4.
- Add the quantity of DBA-unqualified coatings to a list that documents those DBA-unqualified coatings already existing within containment.

The protective coatings program will be implemented prior to the application of coatings on plant surfaces or equipment or the procurement of components and equipment with vendor applied coatings. The protective coatings program is implemented within plant administrative procedures. The administrative procedures are described in Section 13.5.1.

### Question 06.01.02-3

SRP Section 6.1.2 provides that an acceptable method of complying with 10 CFR Part 50, Appendix B requirements is for the coatings monitoring and maintenance program to satisfy the recommendations of RG 1.54, "Service Level I, II, and III Protective coatings Applied to Nuclear Power Plants." RG 1.54 provides that verification that coatings monitoring and maintenance procedures be capable of ensuring that the coatings will not fail (delaminate from the substrate) and, therefore, become a debris source that could prevent the Emergency Core Cooling System (ECCS) from performing its safety related function. RG 1.54 also recommends ASTM standards that are acceptable to the NRC staff with respect to qualification of safety-related coatings to withstand DBA conditions.

The applicant indicated in response to COL information item from Section 6.1.2.3.2 of the EPR FSAR that for components procured without a DBA-qualified coating, an option is to apply a DBA-qualified coating system in accordance with 10 CFR 50, Appendix B, Criterion IX. However, the applicant did not indicate which standards would be used to control the application of the DBA-qualified coatings.

If the applicant applies DBA-qualified coatings on components supplied without a DBA-qualified coating from the manufacturer, what standards will be applied to the qualification and application of these coatings?

### **Response**

The FSAR incorporates Section 6.1.2 of the U.S. EPR FSAR by reference. The DBA-qualified (i.e., Service Level 1) coating will be applied in accordance with those standards stated in Regulatory Guide 1.54, Rev. 1, except as modified via U.S. EPR FSAR Section 6.1.2.4. To further clarify the response, the following standards apply:

- ASTM D5144-00 and ASTM D3911-03 will be utilized for DBA qualification of the coating system. ANSI N101.2-1972 (Protective Coatings [Paints] for Light Water Nuclear Reactor Containment Facilities) is also an acceptable standard in lieu of ASTM D3911-03 for DBA qualification of the coating system except that the acceptance criteria stated in ASTM D3911-03 will be utilized when employing standard ANSI N101.2-1972.
- ASTM D5139-01 will be used when preparing DBA test samples.
- ASTM D4082-02 will be used for the evaluation of the effects of gamma radiation on a coating system.
- ASTM D3843-00 will be used for quality assurance during application of the coatings.
- ASTM D4537-04a will be used for qualification and certification of personnel who inspect coatings.
- ASTM D5498-01 will be used for guidance to ensure that coating inspectors have been properly trained.
- ASTM D4228-05 will be used for qualification of coating applicators that will apply Service Level 1 coatings to steel substrates.
- ASTM D4286-99 will be used for determining the qualifications of a coating contractor.

### **COLA Impact**

FSAR Section 6.1.2.3.2 will be revised as shown in response to question 06.01.02-2 to indicate "The DBA-qualified (i.e., Service Level 1) coating will be applied in accordance with the applicable standards stated in Regulatory Guide 1.54, Rev. 1, except as modified by U.S. EPR FSAR Section 6.1.2.4."