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UniStar
NUCLEAR ENERGY

10 CFR 50.4
10 CFR 52.79

November 16, 2011

UN#11-286

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 324, Fire Protection Program

Reference: Surinder Arora (NRC) to Paul Infanger (UniStar Nuclear Energy), "FINAL RAI 324 SBPA 6053," email dated October 17, 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 October 17, 2011 (Reference). This RAI addresses the Fire Protection Program, as discussed in Section 9.5.1 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.

The enclosure provides our response to RAI No. 324, Questions 09.05.01-19 and 09.05.01-20 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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NRO

If there are any questions regarding this transmittal, please contact me at (410) 369-1907, or Mr. Wayne A. Massie at (410) 369-1910.

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

Executed on November 16, 2011

Mark T. Finley

Enclosure: Response to NRC Request for Additional Information RAI No. 324, Questions 09.05.01-19 and 09.05.01-20, Fire Protection 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)
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

MTF/FRP/mdf

Enclosure

Response to NRC Request for Additional Information

RAI No. 324, Questions 09.05.01-19 and 09.05.01-20,
Fire Protection Program

Calvert Cliffs Nuclear Power Plant, Unit 3

RAI No. 324

Question 09.05.01-19

The response to U.S. EPR RAI 433 Question 09.05.01-6 stated that "NEI 00-01, Rev. 1, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," is the only formal NRC endorsed guideline currently available to the industry that addresses spurious actuations. Preparation of NEI 00-01, Rev. 2 is in progress and has not yet been finalized or endorsed by the NRC. Until such time it is endorsed by the NRC, utilization of NEI 00-01, Rev. 2 is not considered appropriate. It is also not considered appropriate to independently develop assumptions and guidelines for the design of the U.S. EPR, as those developed may be inconsistent with the final industry/NRC product. It is the intent of the U.S. EPR design to follow the NRC endorsed/issued spurious actuation guidance in effect when the U.S. EPR post-fire safe shutdown analysis is formally initiated." RG 1.189 Rev. 2 and NEI 00-01 Rev. 2 have since been issued. RG 1.189 Rev. 2 contains the updated methodology for Post-Fire Safe Shutdown Circuit Analysis including multiple spurious actuations and also endorses certain sections of NEI 00-01 Rev. 2. The applicant is directed to update the methodology for Post-Fire Safe Shutdown Circuit Analysis. The applicant is directed to document the use of RG 1.189 Rev. 2 and the endorsed sections of NEI 00-01 Rev.2 in the FSAR for Post-Fire Safe Shutdown Circuit Analysis Methodology.

Response

Regulatory Guide 1.206 - Combined License Applications for Nuclear Power Plants, June 2007, states in Section C.I.1.9.1, Conformance with Regulatory Guides, that, "Certified designs have already provided information addressing conformance with regulatory guides that were in effect 6 months before the submittal date of the design certification application. In accordance with the provisions of 10 CFR 52.63, "Finality of Standard Design Certifications," COL applicants who reference a certified design are not required to re-address conformance with regulatory guides for the portions of the facility design included in the referenced certified design. However, for the site-specific portions of the facility design that are not included in the referenced certified design, a COL applicant should address conformance with regulatory guides in effect 6 months before the submittal date of the COL application. In addition, the COL applicant should address conformance with regulatory guides in effect 6 months before the submittal date of the COL application insofar as they pertain to operational aspects of the facility."

The following is the chronology of the U.S. FSAR and Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 COLA with respect to Regulatory Guide 1.189:

- Regulatory Guide 1.189, Revision 1, was issued March 2007
- The U.S. EPR FSAR was submitted December 2007
- The CC3 COL Application (FSAR) was submitted March 2008
- Regulatory Guide 1.189, Revision 2, was issued October 2009

Per the criteria in RG 1.206, the U.S EPR FSAR and CCNPP Unit 3 COLA correctly reference and have been designing CCNPP Unit 3 to RG 1.189, Revision 1. A change to a newer revision of RG 1.189 is not currently required and would involve a significant departure from the U.S EPR FSAR. UniStar is not prepared to make such a commitment at this time. The NRC has

made a similar request to the applicant for the U.S EPR in RAI 517, dated October 1, 2011[1]. If the U.S. EPR incorporates the newer version of the RG 1.189, CCNPP Unit 3 will incorporate RG 1.189 Revision 2 and applicable portions of NEI 00-01, Revision 2, through the normal FSAR update process that is being tracked by a commitment to update the COL FSAR, provided in letter UN#10-068, dated March 12, 2010[2].

COLA Impact

The COLA FSAR will not be revised as a result of this response.

[1] U.S. NRC to AREVA e-mail, Draft - U.S. EPR Design Certification Application RAI No. 517 (6052), FSAR Ch. 9, dated October 1, 2011, (ADAMS No. ML11274A001).

[2] UniStar Nuclear Energy Letter UN#10-068, 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. 222, Introduction and Interfaces, dated March 12, 2010

RAI No. 324

Question 09.05.01-20

In the response dated June 21, 2011 about RAI No. 311, Question 09.05.01-17, the applicant states that no changes are needed to the CCNPP3 COLA because U.S. EPR FSAR Rev. 2, Table 9A-2 (footnote 15) addresses the fire hazard analyses and such analyses are outside of the scope of the CCNPP3 COLA. The response states that if alternate storage locations were to be used at a later time, CCNPP3 would use the 10 CFR 50.59 change process to evaluate the impacts of placing potentially combustible radioactive materials in other areas of the plant. The response also relies on CCNPP3 FSAR Table 1.8-2 COL information Item 9.5-17 to evaluate differences between the as-designed and as-built plant configurations in confirming that the fire protection analyses presented in U.S. EPR FSAR Rev. 2, Section 9A remain bounding. This evaluation will be performed, as indicated in CCNPP3 FSAR Table 13.4-1 (item 8), prior to fuel loading and will consider combustible loading and ignition sources, among other concerns.

1. A review of U.S. EPR FSAR Rev. 2, Section 9A.3.8 (Radioactive Waste Processing Building, RWPB) and FSAR Table 9A-2 indicates that the U.S. EPR FSAR does not present a complete detailed fire protection analysis. For those areas of the RWPB listed in U.S. EPR FSAR Table 9A-2 with potential radiological consequences, the entries state that no engineering evaluations were made. In addition, the assignment of Footnote 15 to those areas places the responsibility on the COL applicant. Footnote 15 states: "*This indicates the potential presence of radiological sources in a fire area. Possible radiological effects from a fire and the need for additional in-depth fire protection features to mitigate the consequences of a fire will be evaluated by the COL applicant as a part of the final FHA (refer to Section 9.5.1.3).*" As a result, the applicant is directed to explain as to why the conduct of fire hazard analyses is outside of the scope of the CCNPP3 COLA.

2. While the response to the staff RAI states that, under CCNPP3 FSAR COL information Item 9.5-17, the COL applicant will evaluate differences between the as-designed and as-built plant configurations and confirm that the fire protection analyses presented in U.S. EPR FSAR Rev. 2, Section 9A remain bounding. Since the U.S. EPR FSAR Rev. 2, Section 9A.3.8 and FSAR Table 9A-2 do not provide the results of fire protection analyses for all plant areas identified with potential radiological effects, the applicant is directed to explain how it plans to conduct such a comparison and assess whether as-designed CCNPP3 plant configurations remain bounded and identify any deviations.

3. The applicant is requested to review all plants areas identified in U.S. EPR FSAR Rev. 2, Section 9A.3 and FSAR Table 9A-2 with potential radiological effects flagged with Footnote 15 and present either the results of fire protection analyses for all such plant areas, or commit to conduct such analyses as part of the development of the plant's fire protection program identified in CCNPP3 FSAR Table 13.4-1 (item 8) prior to fuel load. In either case, the applicant is directed to the make the appropriate corresponding changes in presenting the supporting information in CCNPP3 FSAR Sections 9.5.1, 11.4, and 13.4.

For all of the above, the COL applicant is directed to provide sufficient information to enable the staff to conduct an independent evaluation and confirm the applicant's conclusions of regulatory compliance with Part 20 as noted Regulatory Guides 1.189 and 1.206 and NUREG-0800, SRP Sections 9.5.1, 11.3, and 11.4 in the event of a fire.

Response

U.S. EPR FSAR Rev. 2, Table 9A-2 indicates that there are several instances where radiological effects are presumed, but qualified with a Footnote (Footnote 15) leaving the specifics of the fire protection analyses to be completed by the COL applicant. The fire areas qualified with Footnote 15 in U.S. EPR FSAR Rev. 2, Table 9A-2 are the Reactor Building fire area: FA-UJA-01, Fuel Building fire areas: FA-UFA-01, FA-UFA-02, FA-UFA-03, FA-UFA-04, FA-UFA-05, FA-UFA-07, FA-UFA-12, FA-UFA-13, Nuclear Auxiliary Building fire areas: FA-UKA-01, FA-UKA-03, FA-UKA-05, FA-UKA-10, FA-UKA-11, Radioactive Waste Processing Building fire area: FA-UKS-03, Access Building fire areas: FA-UKE-01, FA-UKE-03, FA-UKE-04, FA-UKE-05, FA-UKE-06, and FA-UKE-09.

The CCNPP Unit 3 RAI No. 311, Question 09.05.01-17 response[3] stated that COL Item 9.5-17 identifies that a COL Applicant that references the U.S. EPR design certification will evaluate differences between the as-designed and as-built plant configuration to confirm that the Fire Protection Analysis remains bounding. This COL Item is addressed in CCNPP Unit 3 FSAR Section 9.5.1.3, which commits CCNPP Unit 3 to perform an evaluation of the as-designed and as-built plant to identify any deviations from the U.S. EPR FSAR, and confirm that the Fire Protection Analysis remains bounding, prior to fuel load. A sentence will be added to CCNPP Unit 3 FSAR Section 9.5.1.3, in the paragraph which discusses how COL Item 9.5-17 is addressed, to indicate that the evaluation will address fire areas (identified with Footnote 15 in U.S. EPR FSAR Table 9A-2) which have the potential for the presence of radiological sources.

Item 1

Radioactive Waste Processing Building fire area FA-UKS-03 is identified with Footnote 15 in U.S. EPR FSAR Table 9A-2. CCNPP Unit 3 FSAR Section 9.5.1.3, which indicates how COL Item 9.5-17 is addressed, will indicate that the required evaluation will address this fire area, as it has the potential for the presence of radiological sources.

Item 2

This item is addressed with the sentence which will be added to CCNPP Unit 3 FSAR Section 9.5.1.3. This sentence will indicate that the evaluation will address fire areas (identified with Footnote 15 in U.S. EPR FSAR Table 9A-2) which have the potential for the presence of radiological sources.

Item 3

The fire areas qualified with Footnote 15 in U.S. EPR FSAR Rev. 2, Table 9A-2 are listed above in this RAI response. This item is also addressed with the sentence which will be added to CCNPP Unit 3 FSAR Section 9.5.1.3. This sentence will indicate that the evaluation will address fire areas (identified with Footnote 15 in U.S. EPR FSAR Table 9A-2) which have the potential for the presence of radiological sources. No changes are required to CCNPP3 FSAR Sections 11.4 and 13.4 as the FSAR Section 9.5.1.3 change appropriately addresses the issue.

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[3] UniStar Nuclear Energy Letter UN#11-188, 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. 311, Fire Protection Program, dated June 21, 2011

COLA Impact

CCNPP Unit 3 FSAR Section 9.5.1.3 will be revised as follows:

9.5.1.3 Safety Evaluation – Fire Protection Analysis

The U.S. EPR FSAR includes the following COL Item in Section 9.5.1.3:

A COL applicant that references the U.S. EPR design certification will evaluate the differences between the as-designed and as-built plant configuration to confirm the Fire Protection Analysis remains bounding. This evaluation will be performed prior to fuel loading and will consider the final plant cable routing, fire barrier ratings, combustible loading, ignition sources, purchased equipment, equipment arrangement and includes a review against the assumptions and requirements contained in the Fire Protection Analysis. The applicant will describe how this as-built evaluation will be performed and documented, and how the NRC will be made aware of deviations from the FSAR, if any.

This COL Item is addressed as follows:

{Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC} shall evaluate the differences between the as-designed and as-built plant configuration to confirm the Fire Protection Analysis remains bounding. This evaluation will consider the final plant cable routing, fire barrier ratings, combustible loading, ignition sources, purchased equipment, equipment arrangement and includes a review against the assumptions and requirements contained in the Fire Protection Analysis. The evaluation will address fire areas (identified with Footnote 15 in U.S. EPR Table 9A-2) which have the potential for the presence of radiological sources. A summary of the results of the evaluation, including any identified deviations from the FSAR and confirmation that the Fire Protection Analysis remains bounding, will be provided prior to fuel load.