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10 CFR 50.4
10 CFR 52.79

February 28, 2011

UN#11-093

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 259, Liquid Waste Management

- References:
- 1) Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL RAI 259 CHPB 4919" email dated August 19, 2010
 - 2) UniStar Nuclear Energy Letter UN#11-066, from Greg Gibson to Document Control Desk, U.S. NRC, Response to RAI 259, Liquid Waste Management, dated January 28, 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 August 19, 2010 (Reference). This RAI addresses Liquid Waste Management, as discussed in Section 11.2 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 February 28, 2011 response date for RAI 259, Question 11.02-4. The enclosure provides our response to RAI 259, Question 11.02-4, 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.

DOG
NRD

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 February 28, 2011


Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI 259, Question 11.02-4,
Liquid Waste Management, 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

UN#11-093

Enclosure

**Response to NRC Request for Additional Information
RAI 259, Question 11.02-4, Liquid Waste Management,
Calvert Cliffs Nuclear Power Plant, Unit 3**

RAI 259

Question 11.02-4

Supplemental Question to Unistar Response to RAI 213, Question 11.02-2

Under RAI 213, Question 11.02-2, the staff noted that in FSAR Tier 2, Rev. 6, Section 11.2, the design basis and system descriptions incorporate by reference FSAR Section 11.2 of the U.S. EPR design certification. This endorsement includes those aspects of the quality assurance program for the design, fabrication, procurement, and installation of the LWMS that would meet the guidance of RG 1.143. Unistar FSAR Tier 2, Section 17 refers to the Unistar Nuclear Topical Report No. UN-TR-06-001-A, "Quality Assurance Program Description," Rev. 1, Sept. 11, 2008; and incorporates by reference FSAR Section 17 of the U.S. EPR design certification. A review of U.S. EPR FSAR Section 17.2 indicates that the construction phase and operations of the U.S. EPR are not applicable in the context of its design certification; U.S. EPR FSAR Section 17.3 refers to U.S. EPR FSAR Section 17.5 for details on the description of the QA program; U.S. EPR FSAR Section 17.4 is devoted to the reliability program; and U.S. EPR FSAR Section 17.5 relies on the Areva NP Topical Report ANP-10266A (Rev. 1) in describing its quality assurance program.

Unistar FSAR Section 17.2 commits the COLA applicant to provide the applicable quality assurance program; Unistar FSAR Section 17.3 states that the corresponding section of the U.S. EPR FSAR Section 17.3 is incorporated by reference; Unistar FSAR Section 17.4 is devoted to the reliability program; and Unistar FSAR Section 17.5 incorporates by reference Unistar' own topical report (Unistar Nuclear Topical Report No. UN-TR-06-001-A) in describing its QA program responsibilities. A review of Unistar Nuclear Topical Report, Section U (Quality Assurance Program Commitments) and Section V (Nonsafety-Related SSC Quality Controls) indicates that RG 1.143 is not listed among the cited documents for the LWMS in complying with NRC regulations.

In a response, dated April 6, 2010 the applicant proposed to revise Section U of the Unistar Nuclear Topical Report (No. UN-TR-06-001-A) by adding a reference to RG 1.143. While the addition of RG 1.143 to the Unistar Nuclear Topical Report is acceptable, the staff finds that the addition of a reference does not provide the expected level of details on how the QA elements of RG 1.143 would be implemented at Calvert Cliffs Unit 3. Specifically, FSAR Tier 2, Rev. 6, Sections 11.2, 17.2 and 17.5 are silent on the elements of a QA program that address the fabrication, procurement, and installation of the LWMS based on the guidance of RG 1.143 for permanently installed and skid-mounted systems. Note that this concern also applies to related QA issues in FSAR Section 11.3 for the GWMS, and FSAR Section 11.4 for the SWMS.

Based on a CHPB and QVBA staff review of this RAI and Areva's response to a parallel RAI (RAI No. 4849, Question No. 18315), the applicant is requested to address and resolve the following items in the respective Unistar FSAR sections:

1. In stating that the implementation of the QA program is described in FSAR Section 17, the applicant is requested to make a clear distinction among those elements of the QA program that are mandated under the requirements of Part 50, Appendix B, as identified in U.S. EPR FSAR Rev. 1, Table 3.2.2-1, versus those that would be implemented under RG 1.143 which should be described in Unistar FSAR Section 11.2

for the LWMS, FSAR Section 11.3 for the GWMS, and FSAR Section 11.4 for the SWMS.

2. In describing the implementation of the QA program that would be implemented under RG 1.143, the applicant is requested to endorse the following industry guidance: ANSI/ANS-55-6-1993 (Reaffirmed May 14, 2007) for the LWMS; ANSI/ANS-55-4-1993 (Reaffirmed May 14, 2007) for the GWMS; and ANSI/ANS-40-37-2009 for the SWMS.
3. For the permanently installed LWMS, as described in the FSAR Section 11.2, the applicant is requested to clarify those aspects of the RG 1.143 QA program that are the responsibility of the COLA for the development of procurement specifications, and for confirming the proper fabrication and installation of the LWMS.
4. For skid mounted-LWMS and SWMS, described as COLA options in U.S. EPR FSAR, Rev. 1, Sections 11.2.2 and 11.4.1, the applicant is requested to clarify those aspects of the RG 1.143 QA program that are the responsibility of the COLA for the design and development of procurement specifications, proper fabrication, and in confirming correct operational interfaces of supplemental skid-mounted processing subsystems with the permanently installed LWMS and SWMS.
5. For the permanently installed GWMS, as described in the FSAR Section 11.3, the applicant is requested to clarify those aspects of the RG 1.143 QA program that are the responsibility of the COLA for the development of procurement specifications and in confirming the proper fabrication and installation of the GWMS against those portions of the GWMS system that fall under the requirements of Part 50, Appendix B QA program as identified in U.S EPR Rev. 1, FSAR Table 3.2.2-1.

Response

In response to U.S. EPR RAI 436, Question 11.02-26¹, AREVA NP proposed revisions to COL Items 11.2-6 and 11.4-2, to address the quality assurance requirements for skid-mounted processing systems connected to permanently installed liquid and solid waste management systems. The changes to these COL Items are reflected in the COLA impacts associated with this response.

Question 11.02-4 (1)

As stated in AREVA's response to U.S. EPR RAI 436, Question 11.02-26¹, "U.S. EPR FSAR Tier 2, Table 3.2.2-1 shows the components designated as Supplemented Grade (NS-AQ) safety class and reference Regulatory Guide (RG) 1.143 in the comment column. As shown in U.S. EPR FSAR Tier 2, Table 3.2.2-1, 10 CFR 50, Appendix B requirements are not applicable to these components (they are designated as 'no' under the 10 CFR Appendix B column). Quality Assurance (QA) for these components is implemented following the guidance of RG 1.143."

In accordance with RG 1.143, Section 7, UniStar Nuclear Energy (UNE) has established and documented quality assurance program (QAP) requirements for nonsafety-related systems that

¹ M. Bryan (AREVA) to G. Tesfaye (NRC), "Response to U.S. EPR Design Certification Application RAI No. 436, FSAR Ch. 11, OPEN ITEM, Supplement 2," email dated November 8, 2010.

meet the requirements of ANSI/ANS 55.6-1993 (LWMS), ANSI/ANS 55.4-1993 (GWMS), and ANSI/ANS 40.37-2009 (SWMS). The applicable QAP requirements are implemented in accordance with Quality Assurance Program Description (QAPD) topical report UN-TR-06-001-A, Revision 2, as provided to the NRC in UNE Letter UN#10-252². Specifically, applicable elements of the quality assurance program, specified in QAPD, Part III, Section 1, meet the requirements of RG 1.143 and ANSI/ANS 55.6-1993, ANSI/ANS 55.4-1993, and ANSI/ANS 40.37-2009.

COLA FSAR Sections 11.2.3.8, 11.3.3.7 and 11.4.6 are being revised to reflect the basis for the systems' quality assurance program.

Question 11.02-4 (2)

COLA FSAR Sections 11.2.1.2.4 and 11.2.3.8 are being revised to reflect that implementation of quality assurance for the design (excluding design certification activities), construction, installation and testing provisions of the liquid waste management system (LWMS) following the guidance of ANSI/ANS-55.6-1993 (reaffirmed May 14, 2007). A reference to ANSI/ANS-55.6-1993 is being added to COLA FSAR Section 11.2.5.

COLA FSAR Sections 11.3.1.2.4 and 11.3.3.7 are being revised to reflect that implementation of quality assurance for the design (excluding design certification activities), construction, installation and testing provisions of the gaseous waste management system (GWMS) following the guidance of ANSI/ANS-55.4-1993 (Reaffirmed May 14, 2007). A reference to ANSI/ANS-55.4-1993 is being added to COLA FSAR Section 11.3.5.

COLA FSAR Sections 11.4.1.2.5 and 11.4.6 are being revised to reflect that implementation of quality assurance for the design (excluding design certification activities), construction, installation and testing provisions of the solid waste management system (SWMS) following the guidance of ANSI/ANS-40.37-2009. A reference to ANSI/ANS-40.37-2009 is being added to COLA FSAR Section 11.4.7.

Question 11.02-4 (3)

COLA FSAR Section 11.2.3.8 is being revised to provide the basis for an acceptable quality assurance program for a liquid waste management system.

Question 11.02-4 (4)

COLA FSAR Section 11.4.6 is being revised to provide the basis for an acceptable quality assurance program for skid-mounted liquid and solid waste management system.

Question 11.02-4 (5)

COLA FSAR Section 11.3.3.7 is being revised to provide the basis for an acceptable quality assurance program for a gaseous waste management system.

² G. Gibson (UniStar Nuclear Energy) to Document Control Desk (NRC), "Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 200, Quality Assurance Program Description," Letter UN#10-252, dated September 30, 2010.

COLA Impact

COLA FSAR Table 1.8-2 will be revised as follows (only the impacted portions are shown):

Table 1.8-2—FSAR Sections that Address COL Items

Item No.	Description	Section
11.2-6	A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed LWMS processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the LWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.2, RG 4.21 and 1.143, IE Bulletin 80-10, and NEI 08-08, and all quality assurance requirements as stated in Section 4.3 of ANSI/ANS 55.6-1993.	11.2.1.2.4
...		
11.4-2	A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed solid waste management system (SWMS) processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the SWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.4, Regulatory Guides 4.21 and 1.143, IE Bulletin 80-10, industry standards, and NEI 08-08, and all quality assurance requirements as stated in Section 7 of ANSI/ANS 40.37-1993.	11.4.1

FSAR Section 11.2.1.2.4 is being updated as follows:

11.2.1.2.4 Mobile Systems

The U.S. EPR FSAR includes the following COL Item in Section 11.2.1.2.4:

A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed LWMS processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the LWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.2, RG 4.21 and 1.143, IE Bulletin 80-10, and NEI 08-08, and all quality assurance requirements as stated in Section 4.3 of ANSI/ANS 55.6-1993.

The COL Item is addressed as follows:

Should {Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operation Services, LLC} choose to install and operate mobile skid-mounted equipment to connect to the permanently installed LWMS, then this section of the FSAR will be revised to include plant and site-specific information describing how design features and implementation of operating procedures for the LWMS address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.2, RG 4.21 and 1.143, IE Bulletin 80-10, and NEI 08-08A (NEI, 2009), and the quality assurance requirements as stated in Section 4.3 of ANSI/ANS 55.6-1993 (ANS, 2007).

FSAR Section 11.2.3.8 is being updated as follows:

11.2.3.8 Quality Assurance

~~No departures or supplements.}~~

{Since the impact of radwaste systems on safety is limited, the extent of control required by Appendix B to 10 CFR Part 50 is similarly limited. Thus, a supplemental quality assurance program applicable to design, construction, installation and testing provisions of the liquid radwaste system is established by procedures that complies with the guidance presented in SRP Section 11.2, RG 4.21 and 1.143, IE Bulletin 80-10, NEI 08-08A (NEI, 2009), and ANSI/ANS 55.6-1993 (ANS, 2007).}

FSAR Section 11.2.5 is being updated as follows (only the impacted portion is shown):

11.2.5 References

{ANS, 2007. Liquid Radioactive Waste Processing System for Light Water Reactor Plants, ANSI/ANS 55.6-1993, R2007, American National Standards Institute/American Nuclear Society, 2007.

NEI, 2009. NEI 08-08A, Generic FSAR Template Guidance for Life Cycle Minimization of Contamination, Revision 0, Nuclear Energy Institute, October 2009.

FSAR Section 11.3.1.2.4 is being updated as follows:

11.3.1.2.4 Mobile Systems

The U.S. EPR FSAR includes the following COL Item in Section 11.3.1.2.4:

A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed GWMS processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the GWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.3, RG 4.21, RG, 1.143, IE Bulletin 80-10, and NEI 08-08.

The COL Item is addressed as follows:

Should {Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operation Services, LLC} choose to install and operate mobile skid-mounted equipment to connect to the permanently installed GWMS, then this section of the FSAR will be revised to include plant and site-specific information describing how design features and implementation of operating procedures for the GWMS address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.3, RG 4.21, RG, 1.143, IE Bulletin 80-10, and NEI 08-08A (NEI, 2009), and the quality assurance requirements as stated in Section 4.3 of ANSI/ANS 55.4-1993 (ANS, 2007).

FSAR Section 11.3.3.7 is being updated as follows:

11.3.3.7 Quality Assurance

~~{No departures or supplements.}~~

{Since the impact of radwaste systems on safety is limited, the extent of control required by Appendix B to 10 CFR Part 50 is similarly limited. Thus, a supplemental quality assurance program applicable to design, construction, installation and testing provisions of the gaseous radwaste system is established by procedures that complies with the guidance presented in SRP Section 11.3, RG 4.21 and 1.143, IE Bulletin 80-10, NEI 08-08A (NEI, 2009), and ANSI/ANS 55.4-1993, (ANS, 2007).}

FSAR Section 11.3.5 is being updated as follows (only the impacted portion is shown):

11.3.5 References

{ANS, 2007. Gaseous Radioactive Waste Processing System for Light Water Reactor Plants, ANSI/ANS 55.4-1993, R2007, American National Standards Institute/American Nuclear Society, 2007.

CCNPP, 2005. "Land Use Census around Calvert Cliffs Nuclear Power Plant," Calvert Cliffs Nuclear Power Plant, August, 2005.

...

FSAR Section 11.4.1.2.5 is being updated as follows:

11.4.1.2.5 Mobile Systems

The U.S. EPR FSAR includes the following COL Item in Section 11.4.1.2.5:

A COL applicant that references the U.S. EPR design certification and that chooses to install and operate mobile skid-mounted processing systems connected to permanently installed solid waste management system (SWMS) processing equipment will include plant and site-specific information describing how design features and implementation of operating procedures for the SWMS will address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.4, Regulatory Guides 4.21 and 1.143, IE Bulletin 80-10, industry standards, and NEI 08-08, and all quality assurance requirements as stated in Section 7 of ANSI/ANS 40.37-1993.

The COL Item is addressed as follows:

Should {Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operation Services, LLC} choose to install and operate mobile skid-mounted equipment to connect to the permanently installed SWMS, then this section of the FSAR will be revised to include plant and site-specific information describing how design features and implementation of operating procedures for the SWMS address the requirements of 10 CFR Part 20.1406(b) and guidance of SRP Section 11.4, Regulatory Guides 4.21 and 1.143, IE Bulletin 80-10, industry standards, ~~and NEI 08-08A (NEI, 2009b),~~ and the quality assurance requirements as stated in Section 7 of ANSI/ANS 40.37-2009 (ANS, 2009).

FSAR Section 11.4.6 is being updated as follows:

11.4.6 Quality Assurance

~~No departures or supplements.~~

{Since the impact of radwaste systems on safety is limited, the extent of control required by Appendix B to 10 CFR Part 50 is similarly limited. Thus, a supplemental quality assurance program applicable to design, construction, installation and testing provisions of the solid radwaste system is established by procedures that comply with the guidance presented in SRP Section 11.4, RG 4.21 and 1.143, IE Bulletin 80-10, NEI 08-08A (NEI, 2009), and ANSI/ANS 40.37-2009 (ANS, 2009).}

FSAR Section 11.4.7 is being updated as follows:

11.4.7 References

{ANS, 2009. Mobile Low-Level Radioactive Waste Processing Systems, ANSI/ANS 40.37-2009, American National Standards Institute/American Nuclear Society, 2009.}

{NEI, 2009a. NEI 07-10A, "Generic FSAR Template Guidance for Process Control Program (PCP)", Nuclear Energy Institute, March, 2009.

{NEI, 2009b. NEI 08-08A, Generic FSAR Template Guidance for Life Cycle Minimization of Contamination, Revision 0, Nuclear Energy Institute, October 2009.}