

Greg Gibson
Vice President, Regulatory Affairs

750 East Pratt Street, Suite 1600
Baltimore, Maryland 21202



10 CFR 50.4
10 CFR 52.79

November 29, 2010

UN#10-299

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 273, Regional Climatology

Reference: Surinder Arora (NRC) to Robert Poche (UniStar Nuclear Energy), "FINAL RAI
273 RSAC 5218" email dated November 2, 2010

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 November 2, 2010 (Reference). This RAI addresses Regional Climatology, as discussed in Section 2.3 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 273, Question 02.03.01-35, 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.

DO96
NRO

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 November 29, 2010


for Greg Gibson

Enclosure: Response to NRC Request for Additional Information RAI 273, Question 02.03.01-35, Regional Climatology, 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

Enclosure

**Response to NRC Request for Additional Information
RAI 273, Question 02.03.01-35, Regional Climatology,
Calvert Cliffs Nuclear Power Plant, Unit 3**

RAI 273

Question 02.03.01-35

In its August 19, 2010, response to RAI 250 (e4777), Question 02.03.01-34, the applicant included revised COLA content which, among other changes, included revised text for a paragraph in Section 2.3, "Meteorology," that describes how COL Information Item 2.3-1 is addressed.

COL Information Item 2.3-1 is listed in U.S. EPR DCD, Tier 2, Table 1.8-2, and applies to the whole of Section 2.3 of a COL application. COL Information Item 2.3-1 states:

"If a COL applicant that references the U.S. EPR design certification identifies site-specific meteorology values outside the range of the site parameters in Table 2.1-1, then the COL applicant will demonstrate the acceptability of the site-specific values in the appropriate sections of the Combined License application."

The site parameters listed in U.S. EPR DCD Table 2.1-1 include, among other things, site temperature values, and short-term and long-term atmospheric dispersion parameter values. However, in its August 19, 2010, response, the applicant's revised COLA content for Section 2.3 of the COL FSAR only addresses the departure from the maximum non-coincident 0% exceedance wet bulb temperature described in 2.3.1.2.2.13 of the COL FSAR. The departures and exemptions from the site parameter values for both short-term and long-term atmospheric dispersion values are not addressed.

Please revise the proposed COLA content for Section 2.3 of the COL FSAR to address the additional departures and exemptions required for both short-term and long-term atmospheric dispersion values.

Response

FSAR Section 2.3 is being updated to address the departures from short-term and long-term atmospheric dispersion parameter values. The COLA Part 7 exemption for the Maximum Annual Average Atmospheric Dispersion Factor is being deleted, since there is no Tier 1 information associated with this parameter.

COLA Impact

FSAR Section 2.3 is being updated as follows:

2.3 METEOROLOGY

This section of the U.S. EPR FSAR is incorporated by reference with the following departures and supplements.

The U.S. EPR FSAR includes the following COL Item in Section 2.3.1:

If a COL applicant that references the U.S. EPR design certification identifies site-specific meteorology values outside the range of the design parameters in Table

2.1-1, then the COL applicant will demonstrate the acceptability of the site-specific values in the appropriate sections of the Combined License application.

This COL Item is addressed as follows:

{The CCNPP Unit 3 site-specific meteorology values have been reviewed and compared to determine if they are within the bounds of the assumed meteorology values for a U.S. EPR. This comparison is provided in Table 2.0-1. The CCNPP Unit 3 site-specific meteorology parameters are within the bounds of the conservative limiting meteorology values presented in Table 2.0-1 ~~except for the~~, with the following exceptions:

- ◆ The maximum non-coincident 0% exceedence wet bulb temperature departure is identified in ~~described in~~ Section 2.3.1.2.2.13. The acceptability for the use of this design value is included in Section 9.2.1.1.
- ◆ The 0-2 hour site-specific short-term atmospheric dispersion factor (γ/Q) for the Low Population Zone (LPZ) departure is identified in Section 2.3.4. As use of this site-specific value constitutes a departure from U.S. EPR FSAR Tier 1 Table 5.0-1, an exemption request is provided in COLA Part 7. The acceptability for the use of this value is included in Section 15.0.3.
- ◆ The maximum annual average γ/Q at the Exclusion Area Boundary (EAB) boundary departure is identified in Section 2.3.5. The acceptability for the use of this value is included in Section 2.3.5.3.}

COLA Part 7 is being updated as follows (markup reflects the updated text previously provided in the follow-up response to RAI 244¹):

1.2 EXEMPTION REQUESTS

These exemption requests have been developed assuming approval and issuance of a design certification for the U.S. EPR and are based on the current version of the U.S. EPR FSAR.

Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request the following exemptions related to:

1. Maximum Differential Settlement (across the basemat),
2. ~~Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile limiting sector),~~
3. Accident Atmospheric Dispersion Factor (0-2 hour, Low Population Zone, 1.5 miles),
4. Use of M5™ Advanced Zirconium Alloy Fuel Rod Cladding,
5. Toxic Gas Detection and Isolation,
6. Shear Wave Velocity, and
7. Generic Technical Specifications and Bases - Setpoint Control Program

~~1.2.2 MAXIMUM ANNUAL AVERAGE ATMOSPHERIC DISPERSION FACTOR (0.5 MILE LIMITING SECTOR)~~

~~Applicable Regulation: 10 CFR Part 52~~

~~The U.S. EPR FSAR Tier 2 Table 2.1-1 and Tier 2 Section 2.3.5 identify the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile limiting sector) of $\leq 4.973\text{E-}6 \text{ sec/m}^3$. The corresponding CCNPP Unit 3 value is $5.039\text{E-}06 \text{ sec/m}^3$, as referenced in CCNPP Unit 3 FSAR Table 2.3.5-1, CCNPP Unit 3 Normal Effluent Annual Average, Undecayed, Undepleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors, NE Sector at 0.5 mile.~~

~~Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC, request an exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile limiting sector).~~

¹ 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 244, Fitness for Duty," letter UN#10-225, dated August 31, 2010.

Discussion:

~~The U.S. EPR FSAR Tier 2 Table 2.1-1 and Tier 2 Section 2.3.5 identify the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile — limiting sector) of $\leq 4.973E-6$ sec/m³. The corresponding CCNPP Unit 3 value is $5.039E-06$ sec/m³, as referenced in CCNPP Unit 3 FSAR Table 2.3.5-1, CCNPP Unit 3 Normal Effluent Annual Average, Undecayed, Undepleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors, NE Sector at 0.5 mile. This CCNPP Unit 3 specific value exceeds the U.S. EPR FSAR value. As a result, a review of CCNPP Unit 3 Environmental Report, Table 5.4-6, "Distance to Nearest Gaseous Dose Receptors," was performed. The results of this review indicate that the NE sector of the Exclusion Area Boundary (EAB) (0.5 mile radius centered on Reactor Building) intersects with the Site Area Boundary (0.28 mile) at the shoreline of Chesapeake Bay. The Maximum Annual Average Atmospheric Dispersion Factor (χ/Q) value is computed at 0.5 miles which is located approximately 0.22 mile off shore in the Chesapeake Bay. As presented in CCNPP Unit 3 FSAR Table 2.3.5-1, all other sectors' annual average χ/Q value at 0.5 miles are bounded by the Maximum Annual Average χ/Q value provided in U.S. EPR FSAR Table 2.1-1.~~

~~Although the Maximum Annual Average χ/Q value for CCNPP Unit 3 exceeds the χ/Q limiting value specified in Table 2.1-1 of the U.S. EPR FSAR, operation of CCNPP Unit 3 is justified for the following reasons:~~

- ~~◆ There are no persons currently living within the EAB or on its boundary in the NE sector (i.e., persons will not be living within the sector of the Maximum Annual Average χ/Q value).~~
- ~~◆ The boundary of the EAB in the NE sector lies on Chesapeake Bay, therefore the probability of anyone living on a watercraft 0.22 mile off shore for an extended period of time is extremely low.~~
- ~~◆ The CCNPP Unit 3 will have control over the point in the NE sector at which EAB and the Site Boundary intersect.~~
- ~~◆ All other sectors' maximum annual average χ/Q value are within the limiting value specified in Table 2.1-1 of the U.S. EPR FSAR.~~

~~Therefore, dose limits of 10 CFR 50 Appendix I for the maximally exposed individual will not be exceeded. As such, these changes will not result in a significant decrease in the level of safety otherwise provided by the design described in the U.S. EPR FSAR.~~

~~The exemption is not inconsistent with the Atomic Energy Act or any other statute. As such, the requested exemption is authorized by law.~~

~~This change does not result in a departure from the design and does not require a change in the design described in the U.S. EPR FSAR. In addition, a review has been conducted and concludes that dose limits of 10 CFR 50, Appendix I for the~~

~~maximally exposed individual resulting from the CCNPP Unit 3 specific χ/Q values will not be exceeded. Therefore, the requested exemption will not present an undue risk to the public health and safety.~~

~~The change does not relate to security and does not otherwise pertain to the common defense and security. Therefore, the requested exemption will not endanger the common defense and security.~~

~~The special circumstance necessitating the request for exemption is that the CCNPP Unit 3 specific value for the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile — limiting sector) exceeds the U.S. EPR FSAR value. However, the dose limits of 10 CFR 50, Appendix I for the maximally exposed individual resulting from the CCNPP Unit 3 specific χ/Q values will not be exceeded. As such, application of the regulation for this particular circumstance would not serve the underlying purpose of the rule and is not required to achieve the underlying purpose of the rule.~~

~~This requested exemption does not require a change in the design described in the U.S. EPR FSAR. Therefore, this exemption will not result in any loss of standardization.~~

~~For these reasons, Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC, request approval of the requested exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile — limiting sector).~~