Calvert Cliffs Nuclear Power Plant Unit 3

Combined License Application

Part 7: Departures and Exemption Requests

This COLA Part is completely Site Specific

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1.0 DEPARTURES AND EXEMPTION REQUESTS

1.1 DEPARTURES

This Departure Report includes deviations in the CCNPP Unit 3 COL application FSAR from the information in the U.S. EPR FSAR, pursuant to 10 CFR Part 52. The U.S. EPR Design Certification Application is currently under review with the NRC. However, for the purposes of evaluating these deviations from the information in the U.S. FSAR, the guidance provided in Regulatory Guide 1.206, Section C.IV.3.3, has been utilized.

The following Departures are described and evaluated in detail in this report:

1. Maximum Ground Water Level
2. Maximum Differential Settlement (across the basemat)
3. Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – limiting sector)
4. Accident Atmospheric Dispersion Factor (0-2 hour, Low Population Zone, 1.5 miles)

1.1.1 Maximum Ground Water Level

Affected U.S. EPR FSAR Sections: Tier 1 Table 5.0-1, Tier 2 Table 2.1-1, Tier 2 Section 3.8.4.3.1

Summary of Departure:

The U.S. EPR FSAR identifies a maximum groundwater level of 3.3 ft below grade. Emergency Power Generating Building 1/2 and Essential Service Water System Cooling Tower 1 have groundwater levels that exceed the U.S. EPR FSAR value.

Scope/Extent of Departure:

This Departure is identified in CCNPP Unit 3 FSAR Table 2.0-1 and Section 2.4.12.

Departure Justification:

The post construction groundwater level for Emergency Power Generating Building 1/2 is calculated to be 3.0 ft (0.9 m) below finished grade, or 0.3 ft (0.09 m) above the U.S. EPR FSAR site parameter value of 3.3 ft (1.0 m) below grade, and the post construction groundwater level for one corner of Essential Service Water System Cooling Tower 1 is calculated to be slightly above the U.S. EPR site parameter value of 3.3 ft (1.0 m) below grade (but averages 4.0 ft (1.2 m) below grade at Essential Service Water Cooling Tower 1).

For Emergency Power Generating Building 1/2, separate foundation design calculations were performed for both the U.S. EPR FSAR and CCNPP Unit 3 specific groundwater levels, as discussed in CCNPP Unit 3 FSAR Section 3.8.5.5.2. The results show a variation in Emergency Power Generating Building 1/2 soil bearing pressures and basemat design moments of less than 5%. Factors of safety against sliding and overturning remain within allowable values for both groundwater levels.

For slight groundwater level departure associated with the one corner of Essential Service Water System Cooling Tower 1, as discussed in CCNPP Unit 3 FSAR Section 3.8.5.5.3, the effects of this local anomaly on stability (i.e., factors of safety against sliding and overturning) and soil bearing pressures of Essential Service Water System Cooling Tower 1 were determined to be negligible.

Departure Evaluation:

This Departure, associated with the maximum groundwater level for the Emergency Power Generating Building 1/2 and Essential Service Water System Cooling Tower 1 has been evaluated and determined to not adversely affect the safety function of these structures. Accordingly, this Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific FSAR;

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific FSAR;

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific FSAR;

4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific FSAR;

5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific FSAR;

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific FSAR;

7. Result in a design basis limit for a fission product barrier as described in the plant-specific FSAR being exceeded or altered; or

8. Result in a departure from a method of evaluation described in the plant-specific FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific FSAR.

Therefore, this Departure has no safety significance.

1.1.2 Maximum Differential Settlement (across the basemat)

Affected U.S. EPR FSAR Sections: Tier 1 Table 5.0-1, Tier 2 Table 2.1-1, Tier 2 Section 2.5.4.10.2

Summary of Departure:

The U.S. EPR FSAR identifies a maximum differential settlement of 1/2 inch in 50 feet (i.e., 1/1200) in any direction across the basemat. The estimated settlement values for the Nuclear Island common basemat, Emergency Generating Building foundations, and Essential Service Water System Cooling Tower foundations exceed the U.S. EPR FSAR value.

Extent/Scope of Departure:

This Departure is identified in CCNPP Unit 3 FSAR Table 2.0-1 and Section 2.5.4.10.2.

Departure Justification:

The estimated site-specific values for settlement of the CCNPP Unit 3 Nuclear Island common basemat foundation are in the range of 1/600 (1 inch in 50 feet) to 1/1200 (1/2 inch in 50 feet) as stated in FSAR Section 2.5.4.10.2.

As described in FSAR Section 3.8.5.5.1, to account for the Calvert Cliffs site-specific expected differential settlement values, an evaluation of differential settlements up to 1/600 (1 inch in 50 feet) was performed. The evaluation consisted of a static finite element analysis of the foundation structures which considered the effects of the higher expected displacement (tilt) on the foundation bearing pressures and basemat stress due to structural eccentricities resulting from a uniform rotation of the foundation mat along the axis of the nuclear island common basemat. The evaluation assumed no changes in the soil stiffness or increased flexure due to differential settlement consistent with the design analysis for the standard U.S. EPR design. The evaluation considered Soil Case SC15, from the U.S. EPR FSAR standard design, which represented the softest soil condition used in the U.S. EPR standard plant design and exhibits the largest differential displacements of the basemat. Results from the evaluation indicate there is negligible difference in both the soil bearing pressures and the stresses in the concrete basemat structure when the Nuclear Island is subjected to an initial settlement of 1/600 (1 inch in 50 feet) as compared to the U.S. EPR standard plant analysis results that were based on an initial settlement of 1/1200 (1/2 inch in 50 feet). Therefore, the site specific departure in differential settlement values is structurally acceptable.

The estimated site-specific differential settlement for the Emergency Power Generating Buildings and Essential Service Water System Cooling Towers (based on a fully flexible basemat) are 1/550 and 1/600 (1 inch in 50 feet), respectively, as stated in FSAR Section 2.5.4.10.2.

As described in Sections FSAR 3.8.5.5.2 and 3.8.5.5.3, finite element analyses were performed for the Emergency Power Generating Buildings and Essential Service Water System Cooling Towers using soil springs representing the CCNPP Unit 3 site. For each structure, the differential settlement within the confines of the building periphery is shown to be substantially less than the 1/1200 (1/2 inch in 50 feet) requirement of the U.S. EPR FSAR.

The variation of the finite element analysis differential settlement with the estimated differential settlements of Section 2.5.4.10.2 is attributed to the conventional geotechnical treatment of the foundation as a flexible plate, a condition much more conservative than the actual heavily stiffened (by deep reinforced concrete walls) 6′-0″ thick reinforced concrete Emergency Power Generating Building and Essential Service Water System Cooling Tower basemats.

Finite element analyses were also performed to evaluate the effects of overall Emergency Power Generating Building and Essential Service Water System Cooling Tower tilts of L/550 and L/600, respectively, where L is the least basemat dimension. For these analyses:

- Spring stiffnesses are adjusted to achieve a tilt of L/550,
- The elliptical distribution of soil springs is maintained,
- Soil spring stiffnesses along the basemat centerline (perpendicular to the direction of tilt) are retained, and
- Adjustment is made to all other springs as a function of the distance from the basemat centerline to the edges.

Bending moments from these finite element analyses confirm that an uncracked condition of the Emergency Power Generating Building and Essential Service Water System Cooling Tower basemats is maintained.

Departure Evaluation:

This Departure, associated with the maximum differential settlement of the Nuclear Island common basemat, the Emergency Power Generating Building foundations, and Essential Service Water System Cooling Tower foundations, has been evaluated and determined to not adversely affect the safety function of these structures. Accordingly, the Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific FSAR;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific FSAR;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific FSAR;
4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific FSAR;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific FSAR;
6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific FSAR;
7. Result in a design basis limit for a fission product barrier as described in the plant specific FSAR being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the plant-specific
9. FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific FSAR.

Therefore, this Departure has no safety significance.

1.1.3 Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – limiting sector)

Affected U.S. EPR FSAR Sections: Tier 2 Table 2.1-1 and Section 2.3.5

Summary of Departure:

The U.S. EPR FSAR identifies the Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – limiting sector) of $\leq$ 4.973E-6 sec/m^3. The corresponding CCNPP Unit 3 value is 5.039E-06 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.

Scope/Extent of Departure:

This Departure is identified in CCNPP Unit 3 FSAR Table 2.0-1 and Section 2.3.5.

Departure Justification:

A review of CCNPP Unit 3 Environmental Report, Table 5.4-6, "Distance to Nearest Gaseous Dose Receptors," indicates 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 a 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.

Departure Evaluation:

This Departure, associated with the Maximum Annual Average Atmospheric Dispersion Factor (χ/Q), does not result in dose limits of 10 CFR 50 Appendix I for the maximally exposed individual being exceeded. Therefore this Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific FSAR;

2. Result in more than a minimal increase in the likelihood of occurrence of malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific FSAR;

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific FSAR;

4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific FSAR;

5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific FSAR;

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific FSAR;

7. Result in a design basis limit for a fission product barrier as described in the plant-specific FSAR being exceeded or altered; or

8. Result in a departure from a method of evaluation described in the plant-specific FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific FSAR.

Therefore, this Departure has no safety significance.

1.1.4 Accident Atmospheric Dispersion Factor (0-2 hour, Low Population Zone, 1.5 miles)

Affected U.S. EPR FSAR Sections: Tier 1 Table 5.0-1, Tier 2 Table 2.1-1, Section 2.3.4, and Section 15.0.3

Summary of Departure:

The U.S. EPR FSAR identifies the 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles) of $\leq$ 1.75E-4 sec/m^3. The corresponding CCNPP Unit 3 value is 2.151E-04 sec/m^3, as referenced in CCNPP Unit 3 FSAR Table 2.3.4-1, Site-Specific EAB/LPZ Accident χ/Q Values for Ground Level Releases.

Scope/Extent of Departure:

This Departure is identified in CCNPP Unit 3 FSAR Table 2.0-1, Table 2.3.4-1 and Table 15.0-1.

Departure Justification:

The site specific Accident Atmospheric Dispersion Factors, including the Low Population Zone 0-2 hour at 1.5 miles χ/Q of 2.151E-04 sec/m^3, were used in the calculation of site-specific doses resulting from the design basis accident scenarios specified in U.S. EPR FSAR Section 15.0.3. In each case, the resulting Low Population Zone doses were determined to be below the regulatory limits.

Departure Evaluation:

This Departure, associated with the 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles), does not result in Low Population Zone doses that exceed regulatory limits. Therefore this Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific FSAR;

2. Result in more than a minimal increase in the likelihood of occurrence of malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific FSAR;

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific FSAR;

4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific FSAR;

5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific FSAR;

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific FSAR;

7. Result in a design basis limit for a fission product barrier as described in the plant-specific FSAR being exceeded or altered; or

8. Result in a departure from a method of evaluation described in the plant-specific FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific FSAR.

Therefore, this Departure has no safety significance.

1.1.5 Toxic Gas Detection and Isolation

Affected U.S. EPR FSAR Sections: Tier 1 Section 2.6.1, Tier 2 Section 1.8, Tier 2 Section 6.4, Tier 2 Section 9.4.1, Tier 2 Section 14.2.12.8.10, Tier 2 Chapter 16

Summary of Departure:

The U.S. EPR FSAR Tier 1 Section 2.6.1 requires that the main control room air conditioning system maintain habitability of the control room envelope and ambient temperature conditions inside the control room envelope during toxic gas contamination events. As a result, the U.S. EPR design provides a toxic gas alarm signal with automatically closing air intake dampers. For CCNPP Unit 3, the toxic gas alarm signal is not required and protection from toxic gas contamination events is not part of the site-specific design basis.

Scope/Extent of Departure:

This Departure is identified in CCNPP Unit 3 FSAR Sections 1.8, 6.4, and 9.4.1.

Departure Justification:

An evaluation of the site-specific toxic chemical hazards in CCNPP Unit 3 FSAR Section 2.2.3 did not identify any credible toxic chemical accidents that exceeded the limits established in Regulatory Guide 1.78. No specific provisions are required to protect the operators from an event involving a release of a toxic gas. Therefore, detection of toxic gases and subsequent isolation of the Control Room Envelope (CRE) is not required and is not part of the CCNPP Unit 3 site-specific design basis.

Departure Evaluation:

This Departure, associated with the detection of toxic gas and automatic isolation of the Control Room Envelope, has been evaluated and determined to not adversely affect the safety function.

Accordingly, the Departure does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific FSAR;

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific FSAR;

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific FSAR;

4. Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific FSAR;

5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific FSAR;

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific FSAR;

7. Result in a design basis limit for a fission product barrier as described in the plant-specific FSAR being exceeded or altered; or

8. Result in a departure from a method of evaluation described in the plant-specific FSAR used in establishing the design bases or in the safety analyses.

This Departure does not affect resolution of a severe accident issue identified in the plant specific FSAR.

Therefore, this Departure has no safety significance.

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 Ground Water Level,
2. Maximum Differential Settlement (across the basemat),
3. Maximum Annual Average Atmospheric Dispersion Factor (0.5 mile – limiting sector),
4. Accident Atmospheric Dispersion Factor (0-2 hour, Low Population Zone, 1.5 miles),
5. For these reasons, Unistar Nuclear requests approval of the requested exemption from the U.S. EPR FSAR Tier 2 requirements to correct errors in the Limiting Trip Setpoints in Table 3.3.1-2 of generic U.S. EPR Technical Specification 3.3.1.,
6. Use of M5™ Advanced Zirconium Alloy Fuel Rod Cladding,
7. Dedicated Containment Penetrations, and
8. Use of 2004 Edition of the ASME Code.

The exemption requests associated with Use of M5™ Advanced Zirconium Alloy Fuel Rod Cladding, Dedicated Containment Penetrations, and Use of 2004 Edition of the ASME Code are the same as those previously requested by AREVA is support of the U.S. EPR Design Certification Application.

Discussion and justification for each of the above exemption requests are provided in the following pages.

1.2.1 Maximum Ground Water Level

Applicable Regulation: 10 CFR Part 52

The U.S. EPR FSAR Tier 1 Table 5.0-1, Tier 2 Table 2.1-1, and Tier 2 Section 3.8.4.3.1 identify a maximum groundwater level of 3.3 ft below grade. Emergency Power Generating Building 1/2 and Essential Service Water System Cooling Tower 1 have groundwater levels that exceed the U.S. EPR FSAR value.

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the maximum ground water level.

Discussion:

The post construction groundwater level for Emergency Power Generating Building 1/2 is calculated to be 3.0 ft (0.9 m) below finished grade, or 0.3 ft (0.09 m) above the U.S. EPR FSAR site parameter value of 3.3 ft (1.0 m) below grade, and the post construction groundwater level for one corner of Essential Service Water System Cooling Tower 1 is calculated to be slightly

above the U.S. EPR site parameter value of 3.3 ft (1.0 m) below grade (but averages 4.0 ft (1.2 m) below grade at Essential Service Water Cooling Tower 1).

For Emergency Power Generating Building 1/2, separate foundation design calculations were performed for both the U.S. EPR FSAR and CCNPP Unit 3 specific groundwater levels, as discussed in CCNPP Unit 3 FSAR Section 3.8.5.5.2. The results show a variation in Emergency Power Generating Building 1/2 soil bearing pressures and basemat design moments of less than 5%. Factors of safety against sliding and overturning remain within allowable values for both groundwater levels.

For slight groundwater level departure associated with the one corner of Essential Service Water System Cooling Tower 1, as discussed in CCNPP Unit 3 FSAR Section 3.8.5.5.3, the effects of this local anomaly on stability (i.e., factors of safety against sliding and overturning) and soil bearing pressures of Essential Service Water System Cooling Tower 1 were determined to be negligible.

The change associated with the maximum groundwater level for the Emergency Power Generating Building 1/2 and Essential Service Water System Cooling Tower 1 has been evaluated and determined to not adversely affect the safety function of these structures. Therefore, this change 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, the change has been evaluated and determined to not adversely affect the safety function of the associated structures. 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 Emergency Power Generating Building 1/2 and Essential Service Water System Cooling Tower 1 have groundwater levels that exceed the U.S. EPR FSAR value. However, the CCNPP Unit 3 ground water levels have been evaluated and determined to not adversely affect the safety function of the Emergency Power Generating Building 1/2 or Essential Service Water System Cooling Tower 1. 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 and UniStar Nuclear Operating Services request approval of the requested exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the maximum ground water level.

1.2.2 Maximum Differential Settlement (across the basemat)

Applicable Regulation: 10 CFR Part 52

The U.S. EPR FSAR Tier 1 Table 5.0-1, Tier 2 Table 2.1-1, and Tier 2 Section 2.5.4.10.2 identify a maximum differential settlement of 1/2 inch in 50 feet (i.e., 1/1200) in any direction across the basemat. The estimated settlement values for the Nuclear Island common basemat, Emergency Generating Building foundations, and Essential Service Water System Cooling Tower foundations exceed the U.S. EPR FSAR value.

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the maximum differential settlement.

Discussion:

The estimated site-specific values for settlement of the CCNPP Unit 3 Nuclear Island common basemat foundation are in the range of 1/600 (1 inch in 50 feet) to 1/1200 (1/2 inch in 50 feet) as stated in FSAR Section 2.5.4.10.2.

As described in FSAR Section 3.8.5.5.1, an evaluation of differential settlements up to 1/600 (1 inch in 50 feet) was performed. The evaluation consisted of a static finite element analysis of the foundation structures which considered the effects of the higher expected displacement (tilt) on the foundation bearing pressures and basemat stress due to structural eccentricities resulting from a uniform rotation of the foundation mat along the axis of the nuclear island common basemat. The evaluation assumed no changes in the soil stiffness or increased flexure due to differential settlement consistent with the design analysis for the standard U.S. EPR design. The evaluation considered Soil Case SC15, from the U.S. EPR FSAR standard design, which represented the softest soil condition used in the U.S. EPR standard plant design and exhibits the largest differential displacements of the basemat. Results from the evaluation indicate there is negligible difference in both the soil bearing pressures and the stresses in the concrete basemat structure when the Nuclear Island is subjected to an initial settlement of 1/600 (1 inch in 50 feet) as compared to the U.S. EPR standard plant analysis results that were based on an initial settlement of 1/1200 (1/2 inch in 50 feet). Therefore, the site specific departure in differential settlement values is structurally acceptable.

The estimated site-specific differential settlement for the Emergency Power Generating Buildings and Essential Service Water System Cooling Towers (based on a fully flexible basemat) are 1/550 and 1/600 (1 inch in 50 feet), respectively, as stated in FSAR Section 2.5.4.10.2.

As described in Sections FSAR 3.8.5.5.2 and 3.8.5.5.3, finite element analyses were performed for the Emergency Power Generating Buildings and Essential Service Water System Cooling Towers using soil springs representing the CCNPP Unit 3 site. For each structure, the differential settlement within the confines of the building periphery is shown to be substantially less than the 1/1200 (1/2 inch in 50 feet) requirement of the U.S. EPR FSAR.

The variation of the finite element analysis differential settlement with the estimated differential settlements of Section 2.5.4.10.2 is attributed to the conventional geotechnical treatment of the foundation as a flexible plate, a condition much more conservative than the actual heavily stiffened (by deep reinforced concrete walls) 6'-0" thick reinforced concrete Emergency Power Generating Building and Essential Service Water System Cooling Tower basemats.

Finite element analyses were also performed to evaluate the effects of overall Emergency Power Generating Building and Essential Service Water System Cooling Tower tilts of L/550 and L/600, respectively, where L is the least basemat dimension. For these analyses:

- Spring stiffnesses are adjusted to achieve a tilt of L/550,
- The elliptical distribution of soil springs is maintained,
- Soil spring stiffnesses along the basemat centerline (perpendicular to the direction of tilt) are retained, and
- Adjustment is made to all other springs as a function of the distance from the basemat centerline to the edges.

Bending moments from these finite element analyses confirm that an uncracked condition of the Emergency Power Generating Building and Essential Service Water System Cooling Tower basemats is maintained.

This change associated with the maximum differential settlement of the Nuclear Island common basemat, the Emergency Power Generating Building foundations, and Essential Service Water System Cooling Tower foundations, has been evaluated and determined to not adversely affect the safety function of these structures. Therefore, this change 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, the change has been evaluated and determined to not adversely affect the safety function of the associated structures. 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 Nuclear Island common basemat, the Emergency Power Generating Building foundations, and Essential Service Water System Cooling Tower foundations estimated settlement values exceed the U.S. EPR FSAR value. However, the CCNPP Unit 3 specific maximum differential settlement of the Nuclear Island common basemat, the Emergency Power Generating Building foundations, and Essential Service Water System Cooling Tower foundations, has been evaluated and determined to not adversely affect the safety function of these structures. 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 and UniStar Nuclear Operating Services request approval of the requested exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with maximum differential settlement.

1.2.3 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 $\leq$ 4.973E-6 sec/m^3. The corresponding CCNPP Unit 3 value is 5.039E-06 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 and UniStar Nuclear Operating Services 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).

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/m^3. The corresponding CCNPP Unit 3 value is 5.039E-06 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. 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 a 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 and UniStar Nuclear Operating Services 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).

1.2.4 Accident Atmospheric Dispersion Factor (0-2 hour, Low Population Zone, 1.5 miles)

Applicable Regulation: 10 CFR Part 52

The U.S. EPR FSAR Tier 1 Table 5.0-1, Tier 2 Table 2.1-1, Tier 2 Section 2.3.4, and Tier 2 Section 15.0.3 identify the 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles) of $\leq$ 1.75E-4 sec/m^3. The corresponding CCNPP Unit 3 value is 2.151E-04 sec/m^3, as referenced in CCNPP Unit 3 FSAR Table 2.3.4-1, Site-Specific EAB/LPZ Accident χ/Q Values for Ground Level Releases.

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles).

Discussion:

The U.S. EPR FSAR identifies the 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles) of $\leq$ 1.75E-4 sec/m^3. The corresponding CCNPP Unit 3 value is 2.151E-04 sec/m^3, as referenced in CCNPP Unit 3 FSAR Table 2.3.4-1, Site-Specific EAB/LPZ Accident χ/Q Values for Ground Level Releases. This CCNPP Unit 3 specific value exceeds the

U.S. EPR FSAR value. As a result, the site specific Accident Atmospheric Dispersion Factors, including the Low Population Zone 0-2 hour at 1.5 miles χ/Q of 2.151E-04 sec/m^3, were used to calculate the site-specific doses resulting from the design basis accident scenarios specified in U.S. EPR FSAR Section 15.0.3. In each case, the resulting Low Population Zone doses (reflected in CCNPP Unit 3 FSAR Chapter 15) were determined to be below the regulatory limits. Therefore, 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, the Low Population Zone doses resulting from the associated CCNPP Unit 3 specific χ/Q values have been determined to be below regulatory limits. 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 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles) exceeds the U.S. EPR FSAR value. However, the CCNPP Unit 3 specific 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles), does not result in Low Population Zone doses that exceed regulatory limits. 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 and UniStar Nuclear Operating Services request approval of the requested exemption from compliance with the U.S. EPR FSAR Tier 1 and 2 requirements associated with the 0-2 hour Accident Atmospheric Dispersion Factor (Low Population Zone, 1.5 miles).

1.2.5 FITNESS FOR DUTY PROGRAM

Applicable Regulation: 10 CFR 52.79(a)(44)

Specific wording from which a schedule exemption is requested:

> (a) The application must contain a final safety anaylsis report that describes the facility, presents the design bases and limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license:
>
> (44) A description of the fitness-for-duty program required by 10 CFR part 26 and its implementation.

Pursuant to 10 CFR 52.7 and 10 CFR 52.93 Calvert Cliffs 3 Nuclear Project and Unistar Nuclear Operating Services request a schedule exemption from the requirement of 10 CFR 52.79(a)(44) to provide a "description of the fitness-for-duty program required by 10 CFR part 26 and its implementation" in its application for a combined license for CCNPP Unit 3. Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services propose to provide the Fitness for Duty (FFD) Program description required by 10 CFR 52.79(a)(44) based on the revised 10 CFR Part 26 regulations that are expected to be promulgated and become effective in early 2008 since these are the regulations that are expected to be in effect at the time of implementation of the program.

Discussion:

In an April 17, 2007, affirmation session (ADAMS ML071070361), the Commission approved a final rule amending FFD regulations in 10 CFR Part 26 for both the construction and operating phases for a new nuclear plant. The new and revised Part 26 regulations are expected to be promulgated and become effective in 2008. Implementation of a fitness for duty program at this station is not expected to be required until after 2008.

The construction phase of the Fitness for Duty Program as applied to new plants is not required to be implemented until the commencement of on-site construction to safety of security-related systems, structures and components. Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services will not begin these activities until after the amendments to 10 CFR Part 26 regulations are expected to take effect. The operational phase of the FFD Program is required to be implemented prior to fuel load.

In view of the near-term effectiveness of new FFD regulations, it would be more efficient for Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services and the NRC to submit the FFD Program description required by 10CFR 52.79(a)(44) based on the revised Part 26 rules rather than the rules currently in effect. Accordingly, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services submits a request for a schedule exemption from current Part 52 regulations pursuant to 10 CFR 52.7, "Specific Exemption," and 10 CFR 52.93, "Exemptions and Variances."

Granting this request, which is authorized by law, would allow the NRC to conduct its acceptance review of the CCNPP Unit 3 COL Application based on the revised rules that will become effective in the near future. Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services do not expect the NRC to issue the requested COL until the revised FFD rules take effect. For this and other reasons, granting this exemption request will not present an undue risk to the public health and safety, and is consistent with the common defense and security.

The pending amendments to Part 26 create "special circumstances," as defined in 10 CFR 50.12 (Specific Exemptions) that warrant granting this exemption. Applying the current Fitness for Duty regulations in reviewing the FFD Program description required by 10 CFR 52.79(a)(44) would not serve, and is not necessary to achieve, the underlying purposes of this rule. Further, the underlying purpose of 10 CFR 52.79(a)(44) can be satisfied by meeting the requirements of the revised FFD regulations that will become effective in the near future.

Moreover, compliance with the current rule would cause undue hardship for Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services and would also be inefficient and burdensome for the NRC staff. That approach would require Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services to prepare, and NRC to review, information based on

Fitness for Duty regulations that will soon be superseded by Part 26 amendments, and then (presumabley complete a similar submittal under the revised FFD rules.

For these reasons, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested schedule exemption from the Part 52 requirements to provide a description (in the FSAR) of the fitness for duty program that meets the current Part 26 Fitness for Duty regulations.

1.2.6 USE OF M5™ ADVANCED ZIRCONIUM ALLOY FUEL ROD CLADDING

Applicable Regulations: 10 CFR 50.46 and 10 CFR 50, Appendix K

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from the requirements of 10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, and 10 CFR 50, Appendix K, ECCS Evaluation Models, paragraph I.A.5, regarding the use of Zircaloy or ZIRLO as fuel cladding material. This exemption request is related to the proposed use of the M5™ advanced zirconium alloy for the CCNPP Unit 3 fuel rod cladding and fuel assembly structural material.

Discussion:

In accordance with 10 CFR 52.7, the Commission may grant exemptions from requirements of the regulations of 10 CFR 52 and that the NRC consideration is governed by 10 CFR 50.12. 10 CFR 50.12 states that the NRC may grant an exemption provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. The requested exemption to allow the use of advanced zirconium alloys other than Zircaloy and ZIRLO for fuel cladding material for CCNPP Unit 3 satisfies these requirements as described below.

The NRC has approved similar exemption requests for other nuclear power plants; in particular, fuel with M5™ cladding is used in several operating plants in the United States.

The fuel that will be irradiated in the CCNPP Unit 3 contains cladding material that does not conform to the cladding material designations explicitly defined in 10 CFR 50.46 and 10 CFR 50, Appendix K. However, the criteria for these sections are satisfied for the CCNPP Unit 3 core containing M5™ fuel rod cladding and fuel assembly structural material. Therefore, the requested exemption is authorized by law.

The M5™ fuel rod cladding and fuel assembly structural material have been evaluated to confirm that the operation of this fuel product does not increase the probability of occurrence or the consequences of an accident. The evaluation also concluded that no new or different type of accident will be created that could pose a risk to public health and safety. In addition, appropriate safety analyses have been performed to demonstrate that this fuel type does not present an undue risk to the public health and safety. NRC approved safety analyses methods are used for the CCNPP Unit 3 core which contains M5™ fuel rod cladding and fuel assembly structural materials.

The M5™ fuel rod cladding is similar in design to the cladding material used in operating plants. The special nuclear material in this fuel product will be handled and controlled in accordance with approved procedures. It has been confirmed through evaluation that M5™ fuel rod cladding and fuel assembly structural material will not endanger the common defense and security.

The special circumstance necessitating the request for exemption to 10 CFR 50.46 and 10 CFR 50, Appendix K is that neither of these regulations allows the use of M5™ fuel rod cladding material. The underlying purpose of 10 CFR 50.46 is to ensure that nuclear power facilities have adequately demonstrated the cooling performance of the Emergency Core Cooling System (ECCS). Topical Report BAW-10227P-A, Evaluation of Advanced Cladding and Structural Material (M5™) in PWR Reactor Fuel, approved by the NRC by letter dated February 4, 2000, demonstrates that the effectiveness of the ECCS will not be affected by a change from Zircaloy fuel rod cladding to M5T^{M} fuel rod cladding.

The underlying purpose of 10 CFR 50, Appendix K, paragraph I.A.5 is to ensure that cladding oxidation and hydrogen generation are appropriately limited during a LOCA and conservatively accounted for in the ECCS evaluation model. Specifically, 10 CFR 50, Appendix K requires that the Baker-Just equation be used in the ECCS evaluation model to determine the rate of energy release, cladding oxidation, and hydrogen generation. Appendix D of BAW-10227P-A demonstrates that the Baker-Just model is conservative in all post-LOCA scenarios with respect to the use of M5™ advanced alloy as a fuel rod cladding material.

Therefore, the intent of 10 CFR 50.46 and 10 CFR 50, Appendix K is satisfied for the planned operation with M5™ fuel rod cladding and fuel assembly structural material. Issuance of an exemption from the criteria of these regulations for the use of M5TM fuel rod cladding and fuel assembly structural material in the CCNPP Unit 3 core will not compromise safe operation of the reactor.

For these reasons, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from the 10 CFR 50.46 and 10 CFR 50, Appendix K, requirements regarding the use of Zircaloy or ZIRLO as fuel cladding material.

1.2.7 DEDICATED CONTAINMENT PENETRATIONS

Applicable Regulation: 10 CFR 50.34(f)(3)(iv)

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from the requirements of 10 CFR 50.34(f)(3)(iv) with respect to providing a dedicated containment penetration. The specific requirement is as follows.

> Provide one or more dedicated containment penetrations, equivalent in size to a single 3-foot diameter opening, in order not to preclude future installation of systems to prevent containment failure, such as filtered vented containment system.

Discussion:

In accordance with 10 CFR 52.7, the Commission may grant exemptions from requirements of the regulations of 10 CFR 52 and that the NRC consideration is governed by 10 CFR 50.12. 10 CFR 50.12 states that the NRC may grant an exemption provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. The requested exemption relative to not utilizing a dedicated containment penetration for CCNPP Unit 3 satisfies these requirements as described below.

This requested exemption is not precluded by law.

The CCNPP Unit 3 design does not utilize a dedicated containment penetration. The severe accident assessment (U.S. EPR FSAR Tier 2 Section 19.2), the Probabilistic Risk Assessment (U.S. EPR FSAR Tier 2 Section 19.1) and the containment analysis (U.S. EPR FSAR Tier 2 Section 6.2) demonstrate that a dedicated containment penetration is not required. Specific containment overpressure protection is provided through its large size and strength and through the availability of 47 Passive Autocatalytic Recombiners (PARs) and Severe Accident Heat Removal System (SAHRS) for the removal of hydrogen and steam, respectively, the principle contributors to high containment pressure during a severe accident. The functions of these systems are described in U.S. EPR FSAR Tier 2 Section 19.2.3.3.2. Therefore, the requested exemption does not present an undue risk to the public health and safety.

The severe accident assessment, the Probabilistic Risk Assessment and the containment analysis demonstrate that a dedicated containment penetration is not required. As such, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the severe accident assessment, the Probabilistic Risk Assessment and the containment analysis demonstrate that a dedicated containment penetration is not required, as previously discussed. Therefore, application of the rule is not necessary to achieve the underlying purpose of the rule.

For these reasons, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from 10 CFR 50.34(f)(3)(iv) with respect to providing a dedicated containment penetration.

1.2.8 Use of 2004 Edition of the ASME Code

Applicable Regulation: 10 CFR 50.55a

Pursuant to 10 CFR 52.7 and 10 CFR 52.93, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request an exemption from the requirements of 10 CFR 50.55a with respect to the edition of the ASME Code to be applied in the CCNPP Unit 3 COL Application.

10 CFR 50.55a codifies the ASME code as part of the NRC requirements and currently specifies the use of the 2001 Edition through the 2003 Addenda of the ASME Code. Consistent with NRC policy, 10 CFR 50.55a is amended periodically to incorporate newer editions and addenda of the ASME Code and Code Cases. The current proposed rulemaking (72 FR 16731 dated April 5, 2007) will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. This exemption is only necessary until such time as the rulemaking is finalized and becomes effective.

Discussion:

The 2004 Edition of the ASME Code (no addenda) is applied in the CCNPP Unit 3 COL Application, consistent with the NRC proposed rulemaking to endorse and incorporate the newer edition and addenda. The use of the 2004 Edition of the ASME Code will not take precedence over any ASME Code modifications or limitations currently outlined in 10 CFR 50.55a. This is dictated under the assumption that all modifications and limitations to the 2001 ASME Code and up to the 2003 Addenda as outlined currently by 10 CFR 50.55a will remain valid upon NRC endorsement of the 2004 Edition of the ASME Code. Until such time as an exemption is granted, reconciliation has been conducted with the latest ASME Code edition endorsed by the NRC.

In accordance with 10 CFR 52.7, the Commission may grant exemptions from requirements of the regulations of 10 CFR 52 and that the NRC consideration is governed by 10 CFR 50.12. 10

CFR 50.12 states that the NRC may grant an exemption provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. The requested exemption to permit the use of the 2004 Edition of the ASME Code for CCNPP Unit 3 satisfies these requirements as described below.

This requested exemption is not precluded by law.

10 CFR 50.55a codifies the ASME code as part of the NRC requirements and currently specifies the use of the 2001 Edition through the 2003 Addenda of the ASME Code. Consistent with NRC policy, 10 CFR 50.55a is amended periodically to incorporate newer editions and addenda of the ASME Code and Code Cases. The current proposed rulemaking will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. Therefore, the requested exemption does not present an undue risk to the public health and safety.

10 CFR 50.55a codifies the ASME code as part of the NRC requirements and currently specifies the use of the 2001 Edition through the 2003 Addenda of the ASME Code. Consistent with NRC policy, 10 CFR 50.55a is amended periodically to incorporate newer editions and addenda of the ASME Code and Code Cases. The current proposed rulemaking will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. As such, the requested exemption will not endanger the common defense and security.

The special circumstance necessitating the request for exemption is that the current rulemaking will incorporate the 2004 Edition of the ASME Code and issuance of the final rule is expected in April 2008. The acceptability of the 2004 Edition of the ASME Code in terms of public health and safety is recognized by virtue of the proposed rulemaking, and compliance with the existing edition of the ASME Code in the intervening months is not necessary to achieve the underlying intent of the rule.

For these reasons, Calvert Cliffs 3 Nuclear Project and UniStar Nuclear Operating Services request approval of the requested exemption from 10 CFR 50.55a with respect to the edition of the ASME Code to be applied in the CCNPP Unit 3 COL Application.

1.2.9 Toxic Gas Detection and Isolation

Applicable Regulation: 10 CFR Part 52

The U.S. EPR FSAR Tier 1 Section 2.6.1 requires that the main control room air conditioning system maintain habitability of the control room envelope and ambient temperature conditions inside the control room envelope during toxic gas contamination events. As a result, the U.S. EPR design provides a toxic gas alarm signal with automatically closing air intake dampers. For CCNPP Unit 3, the toxic gas alarm signal is not required and protection from toxic gas contamination events is not part of the site-specific design basis.

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 Tier 2 requirements associated with control room envelope isolation as a result of the toxic gas detection and alarm signal.

Discussion:

The U.S. EPR design includes toxic gas detection and alarm signals to actuate automatic closure of the control room air intake dampers. The evaluation of toxic chemicals hazards in CCNPP

Unit 3 FSAR Section 2.2.3 did not identify any credible toxic chemical accidents that exceed the limits established in Regulatory Guide 1.78. The evaluation concluded that no specific provisions are required to protect the operators from an event involving a release of toxic gas. So, toxic gas detection and subsequent control room envelope isolation are neither needed, nor provided for CCNPP Unit 3. Therefore, this change 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.

The CCNPP Unit 3 design does not require reliance on a toxic gas detection and alarm signal to initiate automatic closure of air intake dampers and isolation of the control room envelope. An evaluation of the CCNPP Unit 3 toxic chemicals in FSAR Section 2.2.3 did not identify any credible toxic chemical accidents that exceeded the limits established in Regulatory Guide 1.78. No new or different type of accident will be created that could pose a risk to 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 it has been demonstrated via analysis that the toxic gas detection and alarm signal to initiate automatic closure of air intake dampers for the main control room envelope is not required, as previously discussed. Therefore, application of the rule is not necessary 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. This exemption request is based on the site specific toxic hazards evaluation and is requested for CCNPP Unit 3.

For these reasons, Calvert Cliffs 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 toxic gas alarms for the main control room.