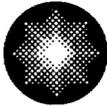


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**Constellation
Nuclear**

**Calvert Cliffs
Nuclear Power Plant**

*A Member of the
Constellation Energy Group*

September 14, 2000

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Request for Exemption from 10 CFR Part 50, Appendix G, Requirements

REFERENCE: (a) Letter from Mr. C. H. Cruse (CCNPP) to NRC Document Control Desk,
dated September 14, 2000, License Amendment Request: Revision to
Technical Specification P-T Curves

Pursuant to the requirements of 10 CFR 50.12(a), Calvert Cliffs Nuclear Power Plant (CCNPP) requests an exemption from certain requirements of 10 CFR Part 50, Appendix G, to use American Society of Mechanical Engineers (ASME) Code Case N-640 to support a license amendment request revising the CCNPP Units 1 and 2 Technical Specification pressure/temperature (P-T) curves (Reference a). Specifically, Paragraph (IV)(A)(2)(b) of 10 CFR Part 50, Appendix G, states: "The pressure-temperature limits . . . must be at least as conservative as limits obtained by following the methods of analysis and the margins of safety of Appendix G of Section XI of the ASME Code." Pressure/temperature limits obtained using Code Case N-640 do not meet the requirements set forth in this paragraph.

Calvert Cliffs Nuclear Power Plant believes that the exemption requirements of 10 CFR 50.12 are satisfied. Special circumstances are present, as described in 10 CFR 50.12(a)(2)(ii) and (iii), to warrant granting the exemption. The exemption is requested for the life of the plant.

THE REQUIREMENTS OF 10 CFR 50.12 ARE MET

The standards set forth in 10 CFR 50.12 provide that specific exemptions may be granted that:

- are authorized by law;
- will not present an undue risk to the public health and safety;
- are consistent with the common defense and security; and
- are accompanied by special circumstances.

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The standards for the exemption are satisfied, as described below.

I. The Requested Exemption is Authorized by Law

No law exists that precludes the activities covered by this exemption request. 10 CFR 50.60(b) allows the use of alternatives to 10 CFR Part 50, Appendices G and H, when an exemption is granted by the Commission under 10 CFR 50.12.

II. The Requested Exemption Does Not Present an Undue Risk to the Public Health and Safety

Code Case N-640 permits use of K_{IC} fracture toughness curve shown on ASME XI, Appendix A, Figure A-2200-1, in lieu of the K_{IA} fracture toughness curve from ASME XI, Appendix G, Figure G-2210-1, as the lower bound for fracture toughness. The exemption request involves only a change of the fracture toughness curve used for development of the P-T curves from K_{IA} to K_{IC} . The other margins involved with the ASME XI, Appendix G, process of determining P-T limit curves remain unchanged.

Use of the K_{IC} curve in determining the lower bound fracture toughness in the development of a P-T operating limits curve is more technically correct than the K_{IA} curve. The K_{IC} curve appropriately implements the use of static initiation fracture toughness behavior to evaluate the controlled heat-up and cooldown process of a reactor vessel. The use of the initial conservatism of the K_{IA} curve when the curve was codified in 1974 was necessary due to the limited knowledge of reactor pressure vessel materials. Since 1974, additional knowledge has been gained about reactor pressure vessel materials, which demonstrates that the lower bound on fracture toughness provided by the K_{IA} curve is well beyond the margin of safety required to protect the public health and safety from potential reactor pressure vessel failure. In addition, P-T curves based on the K_{IC} curve will enhance overall plant safety by opening the P-T operating window with the greatest safety benefit in the region of low temperature operations. The existing CCNPP restrictive heatup and cooldown rates in low temperature regions impact the integrity of plant components due to corrosion, plant work arounds, and critical path time.

III. The Requested Exemption Will Not Endanger the Common Defense and Security

Calvert Cliffs Nuclear Power Plant believes the requested exemption is consistent with the common defense and security.

IV. Special Circumstances

The following special circumstances from 10 CFR 50.12(a)(2) are present:

- (ii) *Application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule.*

As described above, the existing approach for determining the P-T limits was conservatively developed based on the level of knowledge existing in 1974. Since 1974, the level of knowledge in this area has been greatly expanded. This increased knowledge permits relaxation of the current ASME XI, Appendix G, requirements as provided by ASME Code Case N-640, while maintaining the underlying purpose of the ASME Code and the NRC regulations to ensure an acceptable margin of safety.

- (iii) *Compliance would result in undue hardships or costs that are significantly in excess of those contemplated when the regulation was developed.*

During startup from an outage, operation of two reactor coolant pumps (RCPs) to heat up the reactor coolant system (RCS) challenges the existing allowed heatup rate. Two RCPs in low temperature region generate a heatup rate that can exceed the existing heatup rate. Single RCP operation is currently prohibited at CCNPP. Prior to planned heatup, operators allow temperature of the RCS to drift up. The steam generators (SGs) act as a large heat sink limiting the maximum temperature achievable in the RCS with decay heat. Therefore, the SGs frequently require heating with sparged condensate to meet the RCP start criteria. Sparging the condenser and reducing vacuum to raise the temperature of the SG feedwater raises the saturation temperature of the water and increases the oxygen concentration to a level that creates a corrosion environment on the outside of the SG tubes. In addition, the temperature differential between the SGs and the RCS is restricted to prevent exceeding the existing cooldown rates. This restriction imposes a limit to the maximum RCS temperature for an RCP start. Needless transitions to and from shutdown cooling can occur due to these restrictions. This places an unnecessary burden on the plant operators.

Use of Code Case N-640 in the proposed changes described in Reference (a) would alleviate the problems described above by allowing a better controlled plant evolution during startup and shutdown.

CONCLUSION

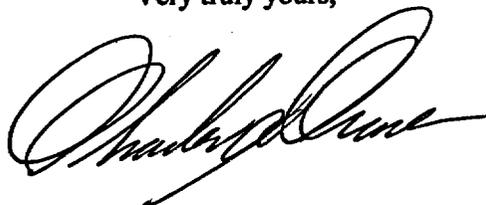
The specified requirements of 10 CFR Part 50, Appendix G, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. American Society of Mechanical Engineers Section XI, Appendix G, procedure was conservatively developed based on the level of knowledge existing in 1974 concerning reactor pressure vessel materials and the estimated effects of operation. Since 1974, the level of knowledge about these topics has been greatly expanded. We believe this increased knowledge permits relaxation of the ASME Section XI, Appendix G, requirements by application of ASME Code Case N-640, while maintaining, pursuant to 10 CFR 50.12(a)(2)(ii), the underlying purpose of the ASME Code and the NRC regulations to ensure an acceptable margin of safety. Therefore, this exemption does not present an undue risk to the public health and safety.

SCHEDULE

As mentioned above, this exemption request supports a license amendment request (Reference a) revising the CCNPP Units 1 and 2 Technical Specification P-T curves. We plan to make use of the proposed heatup and cooldown rates for the upcoming spring 2001 Unit 2 refueling outage. In order to allow time to make the necessary preparation to use the new heatup and cooldown rates, we request that the Nuclear Regulatory Commission review and approve this exemption request and Reference (a) on or before February 28, 2001.

Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,



Document Control Desk

September 14, 2000

Page 4

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