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Comments and questions should be directed to the OMB reviewer listed below by December 18, 2006. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date.

Sarah P. Garman, Office of Information and Regulatory Affairs (3150-0008), NEOB-10202, Office of Management and Budget, Washington, DC 20503.

Comments can also be e-mailed to [Sarah\\_P\\_Garman@omb.eop.gov](mailto:Sarah_P_Garman@omb.eop.gov) or submitted by telephone at (202) 395-4650.

The NRC Clearance Officer is Brenda Jo. Shelton, 301-415-7233.

Dated at Rockville, Maryland, this 8th day of November, 2006.

For the Nuclear Regulatory Commission.  
**Brenda Jo. Shelton,**  
*NRC Clearance Officer, Office of Information Services.*  
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## NUCLEAR REGULATORY COMMISSION

[Docket Nos. 50-317 and 50-318]

### Calvert Cliffs Nuclear Power Plant, Inc.; Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2; Exemption

#### 1.0 Background

Calvert Cliffs Nuclear Power Plant, Inc. (the licensee), is the holder of Renewed Facility Operating License Nos. DPR-53 and DPR-69, which authorize operation of the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (Calvert Cliffs 1 and 2), respectively. The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

The facility consists of two pressurized-water reactors located in Calvert County in Maryland.

#### 2.0 Request/Action

Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Section 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," requires, in part, that "each boiling or pressurized light-water nuclear power reactor fueled with uranium oxide pellets within cylindrical zircaloy or ZIRLO cladding must be provided with an emergency core cooling system (ECCS) that must be designed so that its calculated cooling performance following postulated loss-of-coolant accidents [LOCAs] conforms to the criteria set forth in paragraph (b) of this section." Appendix K, "ECCS Evaluation Models," to 10 CFR Part 50 requires, in part, that the rate of energy release, hydrogen generation, and cladding oxidation from the metal/water reaction shall be calculated using the Baker-Just equation. The Baker-Just equation assumes that the cladding material is composed of either zircaloy or ZIRLO.

By letter dated January 19, 2006, the licensee requested an exemption from the requirements of 10 CFR 50.46 and Appendix K to 10 CFR Part 50 to allow the use of fuel rods clad with advanced zirconium-based alloys from Westinghouse Electric Company and M5 alloy from Framatome ANP, Inc. The advanced zirconium-based and M5 alloys are proprietary alloys and are chemically different from zircaloy or ZIRLO fuel cladding materials, which are approved for use.

The licensee has requested the exemption to support the re-insertion of up to four lead fuel assemblies (LFAs) in the core of either Calvert Cliffs 1 or Calvert Cliffs 2 during the next operating cycle, which is cycle 19 for Unit 1 and cycle 17 for Unit 2. The NRC staff has previously approved the irradiation of 8 LFAs for 2 operating cycles (cycles 15 and 16) in Calvert Cliffs 2, as documented in NRC letter dated April 11, 2003. The licensee has indicated that the LFAs placed back in the core for a third cycle will not exceed the peak fuel rod burnup limitation of 60,000 MWD/MTU and will meet all applicable reload design criteria. The LFAs will be placed in low duty cycle locations on the core periphery to assess the grid-to-rod fretting performance. The other four LFAs will be discharged to the spent fuel pool for detailed post-irradiation examinations. Because the core design is not complete yet, the licensee indicated that, if the Calvert Cliffs 2 cycle 17 core cannot accommodate the LFAs, then the planned alternative is to design the

Calvert Cliffs 1 cycle 19 core so that the LFAs can be inserted.

In summary, 10 CFR 50.46 and 10 CFR Part 50, Appendix K make no provisions for use of fuel rods clad in a material other than zircaloy or ZIRLO. Since the material specifications of the advanced zirconium-based and M5 alloys differ from the specification for Zircaloy or ZIRLO, a plant-specific exemption is required to support the use of the four LFAs in Unit 1 or 2.

#### 3.0 Discussion

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50, when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present. Under Section 50.12(a)(2), special circumstances include, among other things, when application of the specific regulation in the particular circumstance would not serve, or is not necessary to achieve, the underlying purpose of the rule.

#### Authorized by Law

This exemption would allow the licensee to re-insert up to four LFAs, which contain some fuel rods clad with advanced zirconium-based and M5 alloys that do not meet the definition of Zircaloy or ZIRLO as specified by 10 CFR 50.46, in either Calvert Cliffs 1 or 2. As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR Part 50. The NRC staff has determined that granting of the licensee's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, the exemption is authorized by law.

#### No Undue Risk to Public Health and Safety

The underlying purposes of 10 CFR 50.46 is to establish acceptance criteria for ECCS performance. Previously, the Westinghouse safety evaluation (WCAP-15874-NP, Revision 0, "Safety Analysis Report for Use of Improved Zirconium-based Cladding Materials in Calvert Cliffs Unit 2 Batch T Lead Fuel Assemblies," dated April 2002) and approved Framatome ANP topical report (BAW-10227P-A, "Evaluation of Advanced Cladding and Structural Material (M5) in PWR Reactor Fuel," Framatome Cogema Fuels, February 2000) demonstrated the acceptability of

the advanced zirconium-based and M5 cladding under LOCA conditions. The unique features of the LFAs were evaluated for effects on the LOCA analysis. The results showed that the LFAs would not adversely affect the ECCS performance. Since the current four LFAs will be located at non-limiting core locations, the licensee concludes that the LOCA safety analyses will remain bounding for these LTAs for Calvert Cliffs Units 1 and 2.

Paragraph I.A.5 of Appendix K to 10 CFR Part 50 states that the rates of energy, hydrogen concentration, and cladding oxidation from the metal-water reaction shall be calculated using the Baker-Just equation. Since the Baker-Just equation presumes the use of zircaloy clad fuel, strict application of the rule would not permit use of the equation for the advanced zirconium-based and M5 alloys for determining acceptable fuel performance. The underlying intent of this portion of the Appendix, is to ensure that analysis of fuel response to LOCAs is conservatively calculated. The Westinghouse safety evaluation and approved Framatome ANP topical report show that due to the similarities in the chemical composition of the advanced zirconium-based and M5 alloys and zircaloy, the application of the Baker-Just equation in the analysis of the advanced zirconium-based and M5 clad fuel rods will continue to conservatively bound all post-LOCA scenarios. Thus, application of Appendix K, Paragraph I.A.5 is not necessary for the licensee to achieve its underlying purpose in these circumstances.

Based on the above, no new accident precursors are created by the exemption to allow use of advanced zirconium-based and M5 alloy clad fuel, thus, the probability of postulated accidents is not increased. Also, based on the above, the consequences of postulated accidents are not increased. Therefore, there is no undue risk [since risk is probability  $\times$  consequences] to public health and safety.

#### *Consistent With Common Defense and Security*

The proposed exemption would allow the use of LFAs with advanced cladding materials. This change to the plant core configuration has no relation to security issues. Therefore, the common defense and security is not impacted by this exemption.

#### *Special Circumstances*

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation

in the particular circumstances is not necessary to achieve the underlying purpose of the rule. The underlying purpose of 10 CFR 50.46 and Appendix K to 10 CFR Part 50 is to establish acceptance criteria for ECCS performance. The licensee stated that the wording of the regulations renders the criteria of 10 CFR 50.46 and Appendix K inapplicable to the advanced zirconium-based cladding, even though the Westinghouse safety evaluation and the approved Framatome ANP topical reports show that the intent of the regulations are met. Therefore, since the underlying purpose of 10 CFR 50.46 and Appendix K to 10 CFR Part 50 is achieved with the use of the advanced zirconium-based cladding, the special circumstances required by 10 CFR 50.12(a)(2)(ii) for granting of an exemption from 10 CFR 50.46 and Appendix K exist.

#### **4.0 Conclusion**

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants the licensee an exemption from the requirements of 10 CFR 50.46 and 10 CFR Part 50, Appendix K with respect to the use of LFAs with advanced zirconium-based alloy cladding (already irradiated for two cycles at Calvert Cliffs 1 during cycle 19 or Calvert Cliffs 2 during cycle 17).

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (71 FR 64747).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 9th day of November 2006.

For The Nuclear Regulatory Commission  
**Catherine Haney,**

*Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.*

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## **NUCLEAR REGULATORY COMMISSION**

[DOCKET NO. 50-255]

### **Nuclear Management Company; Palisades Nuclear Plant; Notice of Consideration of Approval of Transfer of Facility Operating License and Conforming Amendment and Opportunity for a Hearing**

The U.S. Nuclear Regulatory Commission (the Commission) is considering the issuance of an order under 10 CFR 50.80 approving the transfer of Facility Operating License No. DPR-20 for Palisades Nuclear Plant (Palisades) currently held by Consumers Energy Company (Consumers) and Nuclear Management Company, LLC (NMC), as licensed operator of Palisades. The transfer would be to Entergy Nuclear Palisades, LLC (Entergy Nuclear Palisades). The Commission is also considering amending the license for administrative purposes to reflect the proposed transfer.

According to an application for approval filed by Consumers, NMC, Entergy Nuclear Palisades, and ENO, Entergy Nuclear Palisades would acquire ownership of the facility following approval of the proposed license transfer, and ENO would possess, use, and operate Palisades. No physical changes to the Palisades facility or operational changes are being proposed in the application.

The proposed amendment would replace references to Consumers and NMC in the license with references to Entergy Nuclear Palisades and ENO to reflect the proposed transfer, and revise paragraph 1. B to be consistent with paragraph 2 regarding the disposition of the Provisional Operating License.

Pursuant to 10 CFR 50.80, no license, or any right thereunder, shall be transferred, directly or indirectly, through transfer of control of the license, unless the Commission shall give its consent in writing. The Commission will approve an application for the transfer of a license, if the Commission determines that the proposed transferee is qualified to hold the license, and that the transfer is otherwise consistent with applicable provisions of law, regulations, and orders issued by the Commission pursuant thereto.

Before issuance of the proposed conforming license amendment, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations.

As provided in 10 CFR 2.1315, unless otherwise determined by the