

September 26, 2006

Mr. Paul A. Harden
Site Vice President
Nuclear Management Company, LLC
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT — ISSUANCE OF ENVIRONMENTAL
ASSESSMENT RE: USE OF M5 FUEL CLADDING (TAC NO. MC8576)

Dear Mr. Harden:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for an exemption dated October 4, 2005, as supplemented June 14, 2006. Your proposed exemption would permit Nuclear Management Company, LLC, to use M5 fuel cladding at the Palisades Nuclear Plant.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

L. Mark Padovan, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure:
Environmental Assessment

cc w/encl: See next page

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*Previously concurred

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UNITED STATES NUCLEAR REGULATORY COMMISSION
NUCLEAR MANAGEMENT COMPANY, LLC
DOCKET NO. 50-255
PALISADES PLANT
ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption from Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.46, and Appendix K to 10 CFR Part 50 for Facility Operating License No. DPR-20, issued to Nuclear Management Company, LLC (the licensee), for operation of the Palisades Nuclear Plant (Palisades), located in VanBuren County, Michigan. Therefore, as required by 10 CFR 51.21, the NRC is issuing this environmental assessment and finding of no significant impact.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would provide an exemption from the requirements of: (1) 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," which requires that the calculated emergency core cooling system (ECCS) performance for reactors with zircaloy or ZIRLO fuel cladding meet certain criteria, and (2) 10 CFR Part 50, Appendix K, "ECCS Evaluation Models," which presumes the use of zircaloy or ZIRLO fuel cladding when doing calculations for energy release, cladding oxidation, and hydrogen generation after a postulated loss-of-coolant accident.

The proposed action would allow the licensee to use the M5 advanced alloy in lieu of zircaloy or ZIRLO for fuel rod cladding in fuel assemblies at Palisades.

The proposed action is in accordance with the licensee's application dated October 4, 2005, as supplemented by letter dated June 14, 2006.

The Need for the Proposed Action:

The Commission's regulations in 10 CFR 50.46 and 10 CFR Part 50, Appendix K, require the demonstration of adequate ECCS performance for light-water reactors that contain fuel consisting of uranium oxide pellets enclosed in zircaloy or ZIRLO tubes. Each of these regulations, either implicitly or explicitly, assumes that either zircaloy or ZIRLO is used as the fuel rod cladding material.

In order to accommodate the high fuel-rod burnups that are necessary for modern fuel management and core designs, Framatome ANP developed the M5 advanced fuel rod cladding material. M5 is an alloy comprised primarily of zirconium (~99 percent) and niobium (~1 percent) that has demonstrated superior corrosion resistance and reduced irradiation-induced growth relative to both standard and low-tin zircaloy. However, since the chemical composition of the M5 advanced alloy differs from the specifications of either zircaloy or ZIRLO, use of the M5 advanced alloy falls outside of the strict interpretation of NRC regulations. Therefore, approval of this exemption request is needed to permit the use of the M5 advanced alloy as a fuel rod cladding material at Palisades.

Environmental Impacts of the Proposed Action:

The NRC staff has completed its evaluation of the proposed action and concludes that use of M5 clad fuel would not result in changes in the operations or configuration of the facility. There would be no change in the level of controls or methodology used for processing radioactive effluents or handling solid radioactive waste.

The proposed action will not significantly increase the probability or consequences of accidents. No changes are being made in the types of effluents that may be released off site. There is no significant increase in the amount of any effluent released off site. There is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential non-radiological impacts, the proposed action does not have a potential to affect any historic sites. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the “no-action” alternative). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

The action does not involve the use of any different resources than those previously considered in the Final Addendum to the Final Environmental Statement Related to Operation of the Palisades Nuclear Plant, dated February 1978.

Agencies and Persons Consulted:

In accordance with its stated policy, on September 11, 2006, the staff consulted with the Michigan State official, Mary Ann Elzerman of the Department of Environmental Quality, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated October 4, 2005, as supplemented by letter dated June 14, 2006. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR Reference staff by telephone at 1-800-397-4209 or 301-415-4737, or send an e-mail to pdr@nrc.gov.

Dated at Rockville, Maryland, this 26th day of September 2006.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

L. Mark Padovan, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation