

Mr. Thomas C. Bordine  
 Manager, Licensing  
 Palisades Plant  
 27780 Blue Star Memorial Highway  
 Covert, MI 49043

October 14, 1997

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT  
 IMPACT - REQUEST FOR EXEMPTION FROM 10 CFR 70.24 CRITICALITY  
 ACCIDENT REQUIREMENTS - PALISADES PLANT (TAC NO. M99259)

Dear Mr. Bordine:

Enclosed is a copy of an "Environmental Assessment and Finding of No Significant Impact" for the Palisades Plant. The assessment relates to your application for exemption dated July 2, 1997, from certain requirements of 10 CFR 70.24, "Criticality Accident Requirements."

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

Sincerely,

ORIGINAL SIGNED BY

Robert G. Schaaf, Project Manager  
 Project Directorate III-1  
 Division of Reactor Projects - III/IV  
 Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure: Environmental Assessment

cc w/encl: See next page

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Palisades Plant

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July 1997

UNITED STATES NUCLEAR REGULATORY COMMISSIONCONSUMERS ENERGY COMPANYDOCKET NO. 50-255PALISADES PLANTENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of its regulations for Facility Operating License No. DPR-20, issued to Consumers Energy Company, (the licensee), for operation of the Palisades Plant located in Van Buren County, Michigan.

ENVIRONMENTAL ASSESSMENTIdentification of the Proposed Action:

The proposed action would exempt Consumers Energy from the requirements of 10 CFR 70.24(a), which requires a monitoring system that will energize clear audible alarms if accidental criticality occurs in each area in which special nuclear material is handled, used, or stored. The proposed action would also exempt the licensee from the requirements to maintain emergency procedures for each area in which this licensed special nuclear material is handled, used, or stored to ensure that all personnel withdraw to an area of safety upon the sounding of the alarm, to familiarize personnel with the evacuation plan, and to designate responsible individuals for determining the cause of the alarm, and to place radiation survey instruments in accessible locations for use in such an emergency.

The proposed action is in accordance with the licensee's application for exemption dated July 2, 1997.

The Need for the Proposed Action:

The purpose of 10 CFR 70.24(a) is to ensure that if a criticality were to occur during the handling of special nuclear material, personnel would be alerted to that fact and would take appropriate action. At a commercial nuclear power plant the inadvertent criticality with which 10 CFR 70.24(a) is concerned could occur during fuel handling operations. The special nuclear material that could be assembled into a critical mass at a commercial nuclear power plant is in the form of nuclear fuel; the quantity of other forms of special nuclear material that is stored on site in any given location is small enough to preclude achieving a critical mass. Because the fuel is not enriched beyond 5.0 weight percent Uranium-235 and because commercial nuclear plant licensees have procedures and design features that prevent inadvertent criticality, the staff has determined that it is unlikely that an inadvertent criticality could occur due to the handling of special nuclear material at a commercial power reactor. The requirements of 10 CFR 70.24(a), therefore, are not necessary to ensure the safety of personnel during the handling of special nuclear materials at commercial power reactors.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the proposed action and concludes that there is no significant environmental impact if the exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the Palisades Technical Specifications (TS), the design of the fuel storage racks providing geometric spacing of fuel assemblies in their storage locations, and administrative controls imposed on fuel handling procedures. TS requirements specify reactivity limits for the fuel storage racks and minimum spacing between the fuel assemblies in the storage racks.

Appendix A of 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," Criterion 62, requires that criticality in the fuel storage and handling system shall be

prevented by physical systems or processes, preferably by use of geometrically safe configurations. This is met at Palisades, as identified in the TS and the Final Safety Analysis Report (FSAR). Palisades TS section 5.4.1, "New Fuel Storage," states that the center-to-center spacing in the new fuel storage array is sufficient so that  $K_{eff}$  will not exceed 0.95 where fuel rods of the maximum allowable enrichment are in place and optimum moderation is assumed.

The proposed exemption would not result in any significant radiological impacts. The proposed exemption would not affect radiological plant effluents nor cause any significant occupational exposures since the TS, design controls (including geometric spacing of fuel assembly storage spaces), and administrative controls preclude inadvertent criticality. The amount of radioactive waste would not be changed by the proposed exemption.

The proposed exemption does not result in any significant nonradiological environmental impacts. The proposed exemption involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

Since the Commission has concluded that there is no measurable environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the requested exemption. Denial of the request 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:

This action does not involve the use of any resources not previously considered in the "Final Environmental Statement Related to the Operation of Palisades Nuclear Generating Plant" dated June 1972.

Agencies and Persons Consulted:

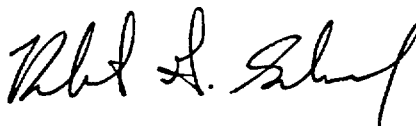
In accordance with its stated policy, on September 18, 1997, the staff consulted with the Michigan State official, Dennis Hahn, of the Michigan Department of Environmental Quality, Drinking Water and Radiological Protection Division, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission 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 July 2, 1997, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Van Wylen Library, Hope College, Holland, Michigan 49423. Dated at Rockville, Maryland, this 14th day of October 1997.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert G. Schaaf, Project Manager  
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Office of Nuclear Reactor Regulation