

Mr. E. E. Fitzpatrick, Vice President  
Indiana Michigan Power Company  
c/o American Electric Power Service Corporation  
1 Riverside Plaza  
Columbus, OH 43215

July 24, 1996

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT -  
EXEMPTION FROM CERTAIN REQUIREMENTS OF 10 CFR 70.24, CRITICALITY  
MONITORING REQUIREMENTS, DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1  
AND 2 (TAC NOS. M95197 AND M95198)

Dear Mr. Fitzpatrick:

Enclosed is a copy of an "Environmental Assessment and Finding of No Significant Impact" for the Donald C. Cook Nuclear Plant, Unit Nos. 1 and 2. The assessment relates to your application for exemption dated April 8, 1996, from certain requirements of 10 CFR 70.24, "Criticality accident requirements." This section requires a criticality monitoring system for the receipt, possession, inspection, and storage of special nuclear materials, in the form of unirradiated fuel assemblies that are not handled or stored beneath water shielding, and requires maintaining emergency procedures for responding to the criticality monitoring system alarm, conduct of drills to meet the emergency procedures, and designating responsible individuals to determine the cause of the alarm.

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

Sincerely,

Original signed by:

John B. Hickman, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Docket Nos. 50-315  
and 50-316

Enclosure: Environmental Assessment

cc w/encl: See next page

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Indiana Michigan Power Company

Donald C. Cook Nuclear Plant

cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSION  
INDIANA MICHIGAN POWER COMPANY  
DOCKET NOS. 50-315 AND 50-316  
DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1 AND 2  
ENVIRONMENTAL ASSESSMENT AND FINDING OF  
NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of 10 CFR 70.24 for Facility Operating License Nos. DPR-58 and DPR-74, issued to Indiana Michigan Power Company, (the licensee), for operation of the D. C. Cook Nuclear Plant, Units 1 and 2, located in Berrien County, Michigan.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would exempt the licensee from the requirements of 10 CFR 70.24, which requires a monitoring system that will energize clearly 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 of 10 CFR 70.24(a)(3) 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 and to conduct drills and designate responsible individuals for such emergency procedures.

This environmental assessment has been prepared to address potential environmental issues related to the licensee's application of April 8, 1996.

The Need for the Proposed Action:

Power reactor license applicants are evaluated for the safe handling, use, and storage of special nuclear materials. The proposed exemption from criticality accident requirements is based on the original design for fuel storage and handling at the D. C. Cook Nuclear Plant, Units 1 and 2. The exemption was granted with the original Unit 2 Special Nuclear Material (Part 70) license, but it expired with the issuance of the Part 50 license when the exemption was inadvertently not included in that license. Therefore, the exemption is needed to clearly define the design of the plant as evaluated and approved for licensing.

Environmental Impacts of the Proposed Action:

The NRC staff 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 Cook Technical Specifications, the geometric spacing of fuel assemblies in the new fuel storage facility and spent fuel storage pool, and administrative controls imposed on fuel handling procedures. Technical specification controls include reactivity requirements (e.g., shutdown margins, limits on control rod movement), instrumentation requirements (e.g., power and radiation monitors), and controls on refueling operations (e.g., refueling boron concentration and source range monitor requirements.) Geometrically, the spent fuel pool is designed to store the fuel in an array that precludes criticality. Existing technical specifications require the effective neutron multiplication factor,  $K_{eff}$ , to be maintained less than or equal to 0.95. The new fuel vault has also been analyzed to maintain  $k_{eff}$  less than or equal to 0.95, including uncertainties, under full water density

flooded conditions and less than or equal to 0.98 under optimum moderation conditions.

In summary, the training provided to all personnel involved in fuel handling operations, the design of the fuel handling equipment, the administrative controls, the technical specifications on new and spent fuel handling and storage, and the design of the new and spent fuel storage racks preclude inadvertent or accidental criticality. In accordance with the NRC's Regulatory Position in Regulatory Guide 8.12, Revision 1, "Criticality Accident Alarm Systems," dated January 1981, an exemption from 10 CFR 70.24 is appropriate.

The proposed exemption will not affect radiological plant effluents nor cause any significant occupational exposures. Only a small amount, if any, radioactive waste is generated during the receipt and handling of new fuel (e.g., smear papers or contaminated packaging material). The amount of waste would not be changed by the exemption.

The change will not increase the probability or consequences of accidents, no changes are being made in the types or amounts of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does involve 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 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 NRC staff considered denial of the proposed action. 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:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement for D.C. Cook, Units 1 and 2, dated August 1973.

Agencies and Persons Consulted:

In accordance with its stated policy, on July 8, 1996, the NRC staff consulted with the Michigan State official, Dennis Hahn, of the Michigan Department of Public Health, Nuclear Facilities and Environmental Monitoring, 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 April 8, 1996, 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 Maud Preston Palenske Memorial Library, 500 Market Street, St. Joseph, Michigan 49085.

Dated at Rockville, Maryland, this 24th day of July 1996.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

John B. Hickman, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

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