

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

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of a temporary Exemption from certain requirements of 10 CFR Part 50, Appendix A, General Design Criterion 2, to Indiana Michigan Power Company (the licensee), for operation of the Donald C. Cook Nuclear Plant, Units 1 and 2, located in Berrien County, Michigan.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action:

The proposed action would grant a temporary Exemption from certain requirements of General Design Criterion (GDC) 2 of Appendix A to 10 CFR Part 50. On July 19, 1991, the licensee requested a temporary Exemption from GDC 2, which requires in part that "Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes....without loss of capability to perform their safety functions." Specifically, the emergency diesel generator (EDG) combustion air intake piping, exhaust piping, and ventilation supply piping



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would not be required to withstand the effects of a tornado. This Exemption would be in effect until the licensee completed modifications to strengthen the affected EDG ventilation components as described in their July 19, 1991 letter, but no later than August 17, 1991.

The Need for the Proposed Action:

Technical Specification (TS) 3.8.1.1.b for both Units 1 and 2 of the Cook Nuclear Plant requires that two diesel generators be operable during Modes 1 through 4. During a review of the electrical distribution system, the licensee identified a low probability event, a tornado, which has the potential for requiring human intervention in order for the diesel generators to be considered operable. Although the diesel generators meet the TS surveillance requirements and would operate for almost all events, the need for human intervention makes the diesel generators' operability questionable for this single event. The specific items in question are the ventilation ductwork which supplies cooling air to the rooms in which the diesel generators are located, the intake silencer for the diesel generator combustion air, and the diesel generator exhaust piping.

In the highly unlikely event that a tornado passes over the Cook Nuclear Plant, the intake ductwork supplying the diesel generator room ventilation may be subjected to an unacceptable decrease in internal pressure. If the ventilation system is not running at the time the tornado passes, a damper in the line would be closed, effectively isolating the internal area of the ducting from the diesel generator room. Because the ducting passes through the diesel generator room and the room would not be vented, a differential

pressure would be imposed across the ducting upstream of the damper. The licensee has been unable to locate documentation which demonstrates the ability of the ductwork to survive the differential pressure associated with this tornado condition. The licensee's preliminary assessment concluded that duct collapse may be possible. A similar concern exists for the diesel generator combustion air intake silencer located inside the diesel generator room.

Additionally, the diesel generator is supplied with combustion air from the atmosphere and exhausts combustion gases to the atmosphere. Both the supply and exhaust piping have components which are located outside of the building. These components, exhaust silencers, intake filters and piping, could be exposed to high wind forces. The licensee has been unable to demonstrate the ability of these components to withstand the forces associated with the wind loadings. Because of the lack of sufficient objective documentation to substantiate EDG operability during a tornado, the licensee declared the EDGs inoperable at approximately 12:15 p.m., EDT on July 18, 1991. At 2:20 p.m., EDT, John Zwolinski, Assistant Director for Region III Reactors, Office of Nuclear Reactor Regulation, granted the licensee a temporary waiver of compliance from TS 3.8.1.1.b, based upon compensatory actions taken by the licensee and the low probability (2×10^{-4} per year) of occurrence of a tornado of sufficient magnitude to be of concern. In his letter to the licensee dated July 19, 1991, Mr. Zwolinski indicated that the licensee should request a temporary Exemption from certain requirements of 10 CFR Part 50, Appendix A,

GDC 2, until corrective actions could be completed to demonstrate compliance, which was anticipated to be no later than August 17, 1991.

Environmental Impacts of the Proposed Action

The proposed Exemption would provide temporary relief from the requirements of GDC 2 that the portions of the EDG ventilation system described above would be able to withstand the effects of a tornado. This relief would be temporary and remain in effect until the licensee had completed corrective actions necessary to demonstrate that the affected components of the EDG ventilation system would be able to withstand the effects of a tornado or until August 17, 1991, whichever is sooner.

The licensee identified and has implemented corrective actions which will alleviate concerns associated with vacuum-induced pressure differential across the ventilation ductwork and the combustion air intake silencer. Additionally, the EDG exhaust silencer, combustion air intake, and ventilation intake components located externally to the building are afforded some protection and shielding from tornado effects by their proximity with respect to structures which are designed to withstand tornadoes. The licensee has begun implementation of modifications to exposed portions of the EDG ventilation system which includes the use of cables to provide additional structural support and removing a portion of the ventilation intake which protrudes outside the building. These modifications will be completed on or before August 17, 1991.

The licensee has also determined from the preliminary results of their probabilistic risk assessment (PRA) that tornadoes resulting in 90 mph winds or greater occur with a low probability (2×10^{-4} per year) within a 125 mile radius of the plant. Further, the majority of the tornadoes occur in the months of April, May, and June. The probability that a tornado would cause both a loss of off-site power and loss of the EDGs by damaging the ventilation system is even lower. The licensee has further stated that there is no significant change in the types of effluents that may be released off-site and there is no significant increase in the allowable individual or cumulative occupational radiation exposure associated with the proposed action.

Based on the above, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed temporary Exemption.

With regard to potential non-radiological impacts, the proposed temporary Exemption does not effect a change in the installation or use of a facility component located within the restricted area as defined by 10 CFR Part 20. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, the Commission concludes that there are no significant non-radiological environmental impacts associated with the proposed Exemption.

Alternative to the Proposed Action:

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested Exemption. This would not reduce environmental impacts of plant operation and would result in increased operational burden on the licensee and the need to subject the plant to additional transients and unnecessary shutdown.

Alternative Use of Resources:

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

Agencies and Persons Consulted:

The NRC staff did not consult other agencies in making its decision on this proposed action.

FINDING OF NO SIGNIFICANT IMPACT

The Commission has determined not to prepare an environmental impact statement for the proposed Exemption.

Based upon the foregoing environmental assessment, the staff concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this proposed action, see the licensee's letter dated July 19, 1991. This letter is available for public inspection at the Commission's Public Document Room, 2120 L Street, N.W., Washington, D.C., and at the Maude Preston Palenske Memorial Library, 500 Market Street, St. Joseph, Michigan 49085.

Dated at Rockville, Maryland, this 26th day of July 1991.

FOR THE NUCLEAR REGULATORY COMMISSION



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