UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

August 1, 1991

Docket Nos. 50-315
and 50-316

Mr. Gene Fitzpatrick, Vice President
Indiana Michigan Power Company
c/o American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43216

Dear Mr. Fitzpatrick:

SUBJECT: TEMPORARY EXEMPTION FROM 10 CFR PART 50, APPENDIX A, GENERAL DESIGN CRITERION 2, FOR THE DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2 (TAC NOS. 81048 AND 81049)

In your letter dated July 19, 1991, you requested a temporary exemption pursuant to 10 CFR 50.12 from the requirement for equipment important to safety to withstand the effects of natural phenomena as described in General Design Criterion (GDC) 2 of Appendix A to 10 CFR Part 50. Specifically, you requested relief from the requirement that the emergency diesel generator (EDG) combustion air intake piping, exhaust piping, and EDG room ventilation supply ductwork be able to withstand the effects of a tornado. You further requested that this exemption remain in effect until August 17, 1991, to allow time to complete modifications to strengthen the ability of the EDG ventilation components to withstand the effects of a tornado and bring the components into compliance with GDC 2.

In accordance with 10 CFR 50.12(a), the staff has determined after review of your July 19, 1991 letter that Indiana Michigan Power Company has provided adequate justification for the requested exemption. Therefore, the Commission hereby grants a temporary exemption from the requirement of 10 CFR Part 50, Appendix A, GDC 2 that the EDG combustion air intake piping including silencer, the exhaust piping including silencer and the EDG room ventilation supply ductwork be able to withstand the effect of a tornado. The approval of this exemption is contingent upon the compensatory measures being taken as described in the licensee's letter dated July 18, 1991, and the staff's letter of July 19, 1991.

Currently, a temporary waiver of compliance (TWOC) from the requirements of Technical Specification 3.8.1.1.b regarding diesel generator operability is in effect for your facilities. This TWOC was issued July 18, 1991, as documented in the NRC letter from J. Zwolinski to Gene Fitzpatrick dated July 19, 1991. This TWOC is rescinded effective the date of the enclosed Exemption.

cc:

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Mr. S. Brewer
American Electric Power
Service Corporation
1 Riverside Plaza
Columbus, Ohio 43216

Attorney General
Department of Attorney General
525 West Ottawa Street
Lansing, Michigan 48913

Township Supervisor
Lake Township Hall
Post Office Box 818
Bridgman, Michigan 49106

Al Blind, Plant Manager
Donald C. Cook Nuclear Plant
Post Office Box 458
Bridgman, Michigan 49106

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
7700 Red Arrow Highway
Stevensville, Michigan 49127

Gerald Charnoff, Esquire
Shaw, Pittman, Potts and Trowbridge
2300 N Street, N.W.
Washington, DC 20037

Mayor, City of Bridgman
Post Office Box 366
Bridgman, Michigan 49106

Special Assistant to the Governor
Room 1 - State Capitol
Lansing, Michigan 48909

Nuclear Facilities and Environmental
Monitoring Section Office
Division of Radiological Health
Department of Public Health
3500 N. Logan Street
Post Office Box 30035
Lansing, Michigan 48909

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
INDIANA MICHIGAN POWER COMPANY	)	Docket Nos. 50-315
	)	and 50-316
(Donald C. Cook Nuclear Plant Units 1 and 2)	)	
	)	

EXEMPTION

I.

The Indiana Michigan Power Company, (the licensee) is the holder of Facility Operating License Nos. DPR-58 and DPR-74, which authorizes operation of the Donald C. Cook Nuclear Plants at steady-state power levels not in excess of 3250 and 3411 megawatts thermal, respectively. The facilities are pressurized water reactors located at the licensee's site in Berrien County, Michigan. The licenses provide, among other things, that the licensee is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

General Design Criterion (GDC) 2 of Appendix A to 10 CFR Part 50 requires that structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami and seiches without loss of capability to perform

their safety functions. The design bases for these structures, systems, and components shall reflect: (1) appropriate consideration of the most severe of the natural phenomena that have been historically reported for the site and the surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated; (2) appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena; and (3) the importance of the safety functions to be performed.

The NRC may grant exemptions from the requirements of the regulations which, pursuant to 10 CFR 50.12(a), are (1) authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security; and (2) present special circumstances. Section 50.12(a)(2)(v) of 10 CFR Part 50 indicates that special circumstances exist when an exemption would provide only temporary relief from the applicable regulation and the licensee has made good faith efforts to comply with the regulation.

III.

By letter dated July 19, 1991, the licensee requested an exemption from the requirements of GDC 2 of Appendix A to 10 CFR Part 50 for the emergency diesel generator (EDG) combination air intake piping including silencer and intake filters, the EDG exhaust piping including silencer, and the EDG room ventilation supply ductwork to be able to withstand the effects of a tornado. The licensee requested that this exemption remain in effect until August 17, 1991, to allow time to implement plant modifications designed to strengthen the tornado resistance of the affected components and bring the affected components into compliance with GDC 2.

The licensee first identified a concern with the ability of the affected components to withstand the effects of a tornado during conduct of a licensee electrical distribution system functional inspection (EDSFI) readiness review. Questions arose as to the existence of proper documentation to support diesel generator operation during a tornado.

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 was unable to locate documentation which demonstrates the ability of the ductwork to survive the differential pressure associated with this tornado condition. Their 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 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 locate documentation which demonstrates the ability of these components to withstand the forces associated with the wind loadings.

IV

The buildings and structures housing safety-related equipment at the D. C. Cook Nuclear Plant were designed to withstand the effects of a tornado. The EDG exhaust silencer, combustion air intake, and ventilation intake components are located such that structures provide a measure of shielding from tornado effects. Further, the licensee has implemented compensatory actions to alleviate the concerns associated with vacuum-induced pressure differential across the ventilation ductwork and the combustion air intake silencer. These include running the EDG room ventilation fans continuously. This opens the damper which provides a path for pressure equalization. Also, doors to the diesel generator rooms and doors and manways in other compartments through which the ventilation ductwork passes have been opened (and appropriate fire watches stationed as necessary) to allow for a vent path and reduce the potential for a pressure differential to exist. Other compensatory actions (modifications to external components) are underway and include using cables to provide additional support and removal of a portion of the ventilation intake which protrudes outside the building. These modifications will address the tornado wind loading concerns and are to be completed no later than August 17, 1991, and will include development of adequate procedures for installation.

Using preliminary results from their probabilistic risk assessment, the licensee calculated that tornadoes resulting in 90 mph or greater winds occur with a frequency of 2×10^{-4} per year within a 125-mile radius of the D. C. Cook Nuclear Plant. Further, the majority of tornadoes within a 125-mile radius of the plant occur in the months of April, May, and June. When considering whether a tornado of 90 mph or greater winds would occur and cause both a loss of off-site power and loss of the EDGs, the probability is even lower.

V

The staff has reviewed the information supplied by the licensee and has had numerous discussions with the licensee concerning the circumstances of the event, their operability determination, and their compensatory and corrective actions. The licensee has determined that these actions would bring the EDGs into compliance with GDC 2 and would be fully implemented no later than August 17, 1991. The staff agrees with the licensee that the actions they have described will adequately enhance the ability of the affected components to withstand the effects of a tornado. Additionally, the staff concurs with the licensee's determination that the occurrence of a tornado during the short duration that this exemption will be in effect is a low probability event. The staff notes also that upon discovery of the nonconforming condition, the licensee made a good faith effort to comply with the regulations through immediate implementation of compensatory actions.

Accordingly, the Commission has determined pursuant to 10 CFR 50.12(a) that (1) this exemption as described in Section III is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security, and (2) special circumstances as provided in 10 CFR 50.12(a)(2)(v) are present for this exemption in that the exemption would provide only temporary relief from the applicable regulation and the licensee has made a good faith effort to comply with the regulation. Therefore, the Commission hereby grants the Exemption request identified in Section III above. The Exemption shall remain in effect until August 17, 1991, or until such time as the licensee completes modifications to achieve compliance with GDC 2, whichever is sooner.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this Exemption will have no significant impact on the environment (56 FR 36849).

This Exemption is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Bruce A. Boger, Director
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 1st day of August 1991

Brent Clayton

OFC	:LA/PD31:DRP345	:PM/PD31:DRP345	:D/PD31:DRP345	:OGC	:BC/SPLB
NAME	:PShuttleworth	:TColburn	:LMarsh for	:	:CMcCracken
DATE	:7/26/91	:7/26/91	:7/26/91	:7/30/91	:7/26/91

OFC	:AD/PD31:DRP	:D/PD31:DRP345	:DST	:	:
NAME	:JZwolinski	:BBoger	:AThadani	: with comment attached	:
DATE	:7/30/91	:7/30/91	:7/29/91	:	:

Document Name: EXEMPTION GDC 2 TAC 81048/49

A copy of the Exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by

L. B. Marsh, Director
Project Directorate III-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
Exemption

cc w/enclosure:
See next page

DISTRIBUTION
Docket Files
NRC & Local PDRs
GHill (8)
Wanda Jones
JZwolinski
TColburn
PShuttleworth
DHagan
EJordan
PD31 R/F
OGC
ARM/LFMB
EButcher
GPA/PA
ACRS(10)

OFC	:LA/PD31:DRP345	:PM/PD31:DRP345	:D/PD31:DRP345	:OGC	:BC/SPLB
NAME	:PShuttleworth	:TColburn	:LMarsh	: DRJ	:CMcCracken
DATE	:7/26/91 mlw	:7/26/91	: 7/26/91	:7/29/91	: 7/26/91

OFC	:AD/PD31:DRP	:D/PD31:DRP345	:	:	:
NAME	:JZwolinski	:BBoger	:	:	:
DATE	:7/30/91	:7/30/91	:	:	:

OFFICIAL RECORD COPY
Document Name: EXEMPTION GDC 2 TAC 81048/49