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 RECIP. NAME      RECIPIENT AFFILIATION  
 FITZPATRICK, E.      Indiana Michigan Power Co.

SUBJECT: Forwards SE accepting use of embedded flaw repair method  
 using procedures & processes outlined in WCAP-14519 as  
 alternative to ASME Code requirements.

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 9, 1996

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

SUBJECT: D.C. COOK, UNITS 1 AND 2, REACTOR VESSEL HEAD PENETRATIONS,  
ALTERNATIVE WELD REPAIR METHOD (TAC NOS. M94942 AND M94943)

Dear Mr. Fitzpatrick:

By letter dated March 12, 1996, Indiana Michigan Power Company submitted a request to the NRC staff to use an alternative repair method if flaws that exceed the acceptance criteria are found during the vessel head penetration (VHP) reinspection during the upcoming refueling outage at the Donald C. Cook Nuclear Plant (D.C. Cook), Units 1 and 2. The VHP reinspections are being conducted because indications attributed to primary water stress corrosion cracking were found in VHP 75 during the inspection of the VHPs at D.C. Cook during the 1994 refueling outage. In addition to VHP 75, several additional VHPs will also be examined to ensure that no new indications are present. Westinghouse performed an evaluation that indicated, despite the presence of the indications, the reactor could be operated for one cycle and that the indications would not grow to a size that would exceed the acceptance criteria before the reinspection. The results of the VHP reinspections at D.C. Cook will be fed into the Westinghouse model to determine what additional inspections are indicated at U.S. nuclear power plants.

Flaws in a VHP in a pressurized water reactor (PWR) were initially detected at a French plant in 1991. Since that discovery, flaws have been discovered in VHPs at numerous plants around the world and in the U.S. The Nuclear Energy Institute (NEI) coordinated an effort by the U.S. PWR owners group. The owners groups submitted safety assessments to the NRC staff that indicated if flaws were initiated in VHPs they would predominately be short, axial cracks. As the cracks grow, the VHP would leak before breaking and the leakage would be detected. The NRC staff reviewed the safety assessments and agreed with the conclusions. NEI submitted proposed acceptable flaw size criteria to the NRC staff and the NRC staff accepted the criteria with comments.

An evaluation of your request to use the alternative weld repair method is provided in the enclosure. A safety evaluation of the Westinghouse Topical Report, WCAP-14519, "RV Closure Head Penetration Tube ID Weld Overlay Repair," in which the repair method is discussed, was issued in a letter to Virginia Electric and Power Company dated February 5, 1996.

The NRC staff concludes that the use of the embedded flaw repair method using the procedures and processes outlined in WCAP-14519 is an acceptable alternative to the ASME Code requirements. The use of the embedded flaw repair method has previously been approved for the Virginia Electric and Power Company North Anna Plant, Unit 1. The proposed alternative for the repair of

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E. Fitzpatrick


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April 9, 1996

flaws exceeding the acceptance criteria for the D.C. Cook Units 1 and 2 reactor vessel head penetrations is authorized as requested pursuant to 10 CFR 50.55a(a)(3)(i). This alternative will provide an acceptable level of quality and safety.

The staff's evaluation and conclusions are contained in the enclosed safety evaluation.

Sincerely,



Mark Reinhart, Acting Director  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Docket Nos. 50-315  
and 50-316

Enclosure: Safety Evaluation

cc w/encl: See next page