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Nuclear
Generation

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NRC-89-0210

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

- References:
- 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
 - 2) Licensee Event Report No. 89-016-00,
dated August 10, 1989
 - 3) Licensee Event Report No. 89-016-01,
dated October 6, 1989
 - 4) Fermi 2 Updated Final Safety Analysis Report

Subject: Residual Heat Removal Service Water System Mechanical
Draft Cooling Tower Fan Brakes

The purpose of this letter is to inform the NRC of Detroit Edison's determination of how inoperability of a Residual Heat Removal Service Water System mechanical draft cooling tower fan brake should be treated.

At Fermi 2, the Residual Heat Removal (RHR) reservoirs are the ultimate heat sink. The ultimate heat sink is used to remove decay heat when the normal heat sink, the main condenser, is unavailable. The system is described in the Updated Final Safety Analysis Report, Section 9.2.5.2. Each reservoir cooling tower has two cooling fans. Both cooling tower fans are required to be operable per Technical Specification Section 3.7.1.5 for the reservoir to be operable.

The design provided each fan with a brake system to prevent overspeed from the design-basis tornado. As a follow-up action to Licensee Event Report No. 89-016-00 (Residual Heat Removal Service Water Cooling Tower Fan Brake Inoperable Due to Low Nitrogen Pressure), an analysis was performed to determine if the brakes are actually necessary to protect the fan during the design-basis tornado. The review concluded that the brakes are necessary to protect the fans during the postulated tornado to assure the fans will be capable of performing their function following the tornado.

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Per the Technical Specification definition, a component is operable when it is capable of performing its specified function and when all necessary attendant auxiliary equipment that is required for the component to perform its function is also capable of performing its support function.

The RHR cooling tower fan brakes are only necessary to maintain functionality of the fans during a design-basis tornado. The fans are capable of performing their function under all other circumstances, including the Design Basis Accident, without the brakes. Therefore, the brakes are not necessary support equipment for the fans, except during a design-basis tornado.

Following a design-basis tornado, the ultimate heat sink is capable of performing its safety function without the fans being operable for at least four hours for a worst case temperature scenario. During normal temperature conditions, this time period is significantly longer. The operators could take several possible courses in order to provide alternate cooling. An example of one of these options would be to restore power and use the circulating water system and the main condenser to provide blowdown.

Tornadoes are generally preceded by a National Weather Service issued tornado watch or tornado warning. The former is issued when conditions are present for a tornado to form, the latter when a tornado has been sighted. The National Weather Service tends to be conservative when issuing severe weather watches. For example, since January 1985, 30 tornado watches and warnings have been issued for Monroe County while there have been only 2 actual tornado touchdowns, one of which was unconfirmed.

Since the brakes are only required for the fan to function following being struck by a tornado, Detroit Edison believes operability of the fans should be tied to operability of the brakes only when the conditions exist for a tornado. Therefore, if a fan brake is inoperable or becomes inoperable and a tornado watch or warning has been issued for Monroe County or the immediate surrounding area, the fan should be declared inoperable. If a tornado warning or watch has not been issued, the fan will still be considered operable even if its brake is inoperable. Procedure NPP-20.000.01 will be modified to state the need to declare a fan inoperable if its brake is inoperable following issuance of a tornado watch or warning. In order to ensure control room operators are aware of when the fan brakes are inoperable, an out-of-service condition will be tracked in the ICO (Limiting Condition for Operation) log. This will also serve to focus attention on any problems with the brakes.

The Detroit Edison Systems Operations Center notifies the Fermi 2 Control Room when severe weather is predicted for the Detroit Edison service area, which encompasses much of southeastern Michigan. The

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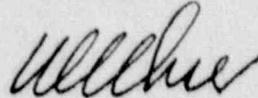
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Systems Operation Center currently bases their notification on information obtained from a weather service provided by Murrey and Truttel. The Systems Operations Center is also connected to the National Weather Service (NWS) via a satellite dish and will provide information obtained from the NWS upon request. Installation of National Weather Service communication capability or warning equipment at Fermi 2 is being explored. If such equipment is installed it will be relied upon for severe weather information rather than the Systems Operations Center.

Detroit Edison believes this position on operability of the RHR fan brakes is consistent with the definition of operability and the Detroit Edison design intention of the brakes. It logically ties operability of the fan to operability of the brake during conditions when the brake may be necessary.

If you have any questions or would like to discuss this matter, contact Lynne Goodman at (313) 586-4211.

Sincerely,



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J. F. Stang