February 14, 2000

Mr. Douglas R. Gipson
Senior Vice President
Nuclear Generation
Detroit Edison Company
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI 2 - COMPLETION OF LICENSING ACTION FOR GENERIC LETTER (GL) 96-06, "ASSURANCE OF EQUIPMENT OPERABILITY AND CONTAINMENT INTEGRITY DURING DESIGN-BASIS ACCIDENTS," DATED SEPTEMBER 30, 1996 (TAC NO. M96811)

Dear Mr. Gipson:

The NRC staff issued GL 96-06 on September 30, 1996, to all holders of operating licenses for nuclear power reactors, except for those licenses that have been amended to possession-only status. GL 96-06 requested information from licensees related to two concerns: (1) water hammer and two-phase flow in the cooling water systems that serve the containment air coolers and (2) thermally induced overpressurization of isolated water-filled piping sections in containment. On November 13, 1997, the staff issued Supplement 1 to GL 96-06, informing licensees about ongoing efforts and new developments associated with GL 96-06 and providing additional guidance for completing corrective actions. You responded in letters dated October 30, 1996, January 28 and October 17, 1997, March 27 and June 30, 1998, and May 13, June 9, and November 29, 1999. The results of the NRC staff's review of your responses to GL 96-06 follow.

Water Hammer and Two-Phase Flow

You provided your assessment of the issues related to water hammer and two-phase flow in the cooling water systems that serve the containment air coolers in your letter dated January 28, 1997, as supplemented on June 30, 1998. Based on the information you submitted, including clarifications that you provided in a telephone call on February 10, 1999, the NRC staff understands that cooling water will not be restored to the drywell coolers following the event scenarios that are of concern. Therefore, the water hammer and two-phase flow issues are not applicable to Fermi 2. The staff concludes that the issue of water hammer and two-phase flow in the cooling water systems that serve the containment air coolers at Fermi 2 is closed.

Thermally Induced Overpressurization

In your submittal of January 28, 1997, you identified six penetrations as potentially vulnerable to a water-solid volume that may be subjected to an increase in pressure due to heating of trapped fluid. You determined that all affected penetrations were operable based on potential leakage through packing, bonnet gaskets, and/or valve seating surfaces.

In response to the staff's request for additional information of September 9, 1997, you submitted letters dated October 17, 1997, and March 27, 1998. In these letters, you stated that for one of the penetrations, the pressure acting under the inboard isolation valve seat will open the spring-to-close isolation valve and relieve the penetration pressure to the reactor before the piping is subjected to overpressurization. For two of the penetrations, you committed to install rupture disks with a set pressure much higher than the system operating pressure to relieve the overpressure to an expansion tank located outside the containment. Based on your analysis, you determined that the remaining three penetrations did not require any modification. In your June 9, 1999, response to the staff's request for additional information of May 14, 1999, you (1) confirmed the installation of rupture disks during the fall 1998 refueling outage; (2) provided a design calculation to show that the pressure acting under the inboard isolation valve seat will lift open the spring-to-close isolation valve and there is sufficient design margin to accommodate any uncertainty associated with the calculated lift pressure; and (3) committed to reanalyze the three penetrations to determine an appropriate resolution to the thermally induced pressurization concern.

In your submittal of November 29, 1999, you provided your evaluation of the three penetrations and concluded that the penetrations meet the criteria in Appendix F to Section III of the ASME Code and do not require any modification. In a telephone discussion on December 9, 1999, your staff provided clarification of its Appendix F evaluation. The NRC staff concludes that your evaluation is reasonable and acceptable. During the telephone discussion on December 9, 1999, your staff, in accordance with the guidance in Supplement 1 to GL 96-06, also committed to determine whether a license amendment is required to incorporate the permanent use of the acceptance criteria contained in ASME Code, Section III, Appendix F, for Class 2 piping. This application of the Appendix F criteria appears to be outside the current design basis. The staff concludes that your corrective actions and evaluations provide an acceptable resolution for the issue of thermally induced pressurization of piping runs penetrating the containment. The staff's conclusion is provisional, provided that you complete resolution of the issue of the application of ASME Code, Section III, Appendix F, for Class 2 piping.

Finally, the staff concludes that all requested information has been provided; therefore, we consider GL 96-06 to be closed for your facility.

Sincerely,

/RA/

Andrew J. Kugler, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-341

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In response to the staff's request for additional information of September 9, 1997, you submitted letters dated October 17, 1997, and March 27, 1998. In these letters, you stated that for one of the penetrations, the pressure acting under the inboard isolation valve seat will open the spring-to-close isolation valve and relieve the penetration pressure to the reactor before the piping is subjected to overpressurization. For two of the penetrations, you committed to install rupture disks with a set pressure much higher than the system operating pressure to relieve the overpressure to an expansion tank located outside the containment. Based on your analysis, you determined that the remaining three penetrations did not require any modification. In your June 9, 1999, response to the staff's request for additional information of May 14, 1999, you (1) confirmed the installation of rupture disks during the fall 1998 refueling outage; (2) provided a design calculation to show that the pressure acting under the inboard isolation valve seat will lift open the spring-to-close isolation valve and there is sufficient design margin to accommodate any uncertainty associated with the calculated lift pressure; and (3) committed to reanalyze the three penetrations to determine an appropriate resolution to the thermally induced pressurization concern.

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Andrew J. Kugler, Project Manager, Section 1
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