Consumers Power Company

James W Cook
*Vice President - Projects, Engineering and Construction*

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

March 1, 1982


Harold R Denton, Director
Office of Nuclear Reactor Regulation
Division of Licensing
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND PROJECT
MIDLAND DOCKET NOS 50-329, 50-330
AFW SYSTEM RELIABILITY
FILE: 0926 SERIAL: 16008

ENCLOSURES: (1) B&W System Analysis - LOFW

(2) PL&G AFW Reliability Reanalysis - LOFW/LOOP

On January 22, 1982 CP Co met with the NRC Staff to discuss the Midland AFW system unavailability. CP Co stated that the Midland AFW reliability analysis, performed by PL&G, demonstrates that our system is adequate and comparable in unavailability to other systems licensed or under review. Since the assumptions and methodology used by the Staff to set the system unavailability goal were not clearly defined, CP Co was unable to fully assess the acceptability of the overall Midland design against the goal.

At the meeting the Staff stated that the analysis used to obtain the AFW system unavailiability should be based on the assumptions of NUREG-0611. It was brought out at the meeting and in the Commonwealth Edison Byron Unit's SER that a two pump AFW system, which included the capability of powering the motor driven AFW pump from either of two emergency diesels, was acceptable to the Staff if the AFW system meets the unavailability goal contained in SRP 10.4.9.

The power supply arrangement for the Midland motor driven AFW pump will be modified to allow a rapid alignment of the pump to either the "A" or "B" diesel. This is accomplished by providing a 4160V switchgear breaker in each cubicle supplying the motor driven AFW pump. One racked to the "operate" position and the other racked to the disconnect position. An interlock with a Kirk-Key arrangement that prevents both breakers from being racked to the "operate" position at the same time will be provided. Control switches for each circuit breaker are provided in the main control room. A concern with this arrangement involves a postulated fire in the "B" switchgear room and/or

B001
1/1

"B" AFW pump cubicle located in the "B" switchgear room. The normal power path to the AFW pump runs from the "A" cubicle through the "B" cubicle and then to the pump. A fire in the "B" switchgear room hypothetically disables the turbine driven AFW pump by shorting out the "B" DC system and disables the motor driven AFW pump by shorting the 4160V power cable running through the "B" AFW cubicle to the motor driven AFW pump. The switchgear rooms do not contain any significant transient combustibles and the only installed combustibles are fire resistent cables. A fire within the cubicle is improbable unless maintenance work was being performed and in this event precautions are taken to allow work in a "live" cubicle. The possibility of a fire consuming the entire room is also unlikely.

The probability of a fire actually occurring and achieving this level of damage is extremely low. Still, CP Co is installing a separate electrical feed from the "A" 4160V switchgear cubicle to the motor driven AFW pump which can be used as a replacement for the normal feed in the event of such a fire. This cable will not normally be connected at the pump and no credit for it is taken in the AFW reliability analysis.

To support the time required for manual power supply realignment, a conservative B&W analysis (Enclosure 1) has been provided which demonstrates that at least 25 minutes are available with no unacceptable consequences before AFW system startup is required. In addition, the Midland AFW system reliability has been recalculated (Enclosure 2) using the assumptions of NUREG-0611 and utilizing dual power supplies and a 48 hour Tech Spec requirement for unavailability of an AFW pump. The results demonstrate that the AFW system unavailability at 15 minutes is within the NRC goal.

With the addition of a 4160V breaker and retention of the original cross-connect ability, Midland meets the guidelines of NUREG-0737, Item II.E.1.1 and SRP 10.4.9. In addition high pressure decay heat removal can also be provided by feed and bleed. If need be, CP Co can arrange a meeting to discuss the enclosures although we believe the Staff has enough information to close-out this issue.

James W. Cook

JWC/PEP/fms

CC RJCook, Midland Resident Inspector
RHernan, US NRC
OParr, US NRC
DBMiller, Midland Construction (3)
RWHuston, Washington

oc0282-0696a131