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Company**

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

February 7, 1972

Dr. Peter A. Morris, Director
Division of Reactor Licensing
United States Atomic Energy Commission
Washington, DC 20545

Re: Docket No 50-255
License No DPR-20

Dear Dr. Morris:

This letter is written to apprise you of an incident that occurred January 28, 1972 at the Palisades Plant, involving the motor package of control rod drive mechanism (CRDM) No 35.

Plant Condition at the Time of the Incident

At the time the incident occurred, the reactor was operating at 20 percent of rated thermal power with a generator electrical output of approximately 106 MWe (gross). Testing was in progress which involved increasing primary system boron concentration. Regulating Groups 3 and 4 were being withdrawn by the automatic rod control system to the upper electrical limit and 66 inches, respectively, to overcome the boron additions.

Description of the Incident

Regulating Group 3 (includes No 35) was being withdrawn in the automatic mode to overcome boron addition, when a 4-inch rod deviation alarm was received. A check of the individual rod position indication of the CRDM in regulating Group 3 revealed that CRDM No 35 had stopped at 107.2 inches. During this check of the position indication, an 8-inch rod deviation alarm was received and the remaining CRDM in the group were withdrawn to 118 inches before reaching power equilibrium.

An unsuccessful attempt was made to withdraw CRDM No 35 in the manual individual mode. CRDM No 35 motor package fuses were changed and another unsuccessful attempt was made to withdraw No 35. The CRDM was then successfully inserted about an inch and then withdrawn in the manual individual mode to its proper place with regulating Group 3.

The testing was continued with additional boration and successfully completed with regulating Group 3 at its upper electrical limit and regulating Group 4 at 66 inches. All further CRDM operations were normal.

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The malfunction of CRDM No 35 was essentially identical to the malfunction of CRDM No 39 which occurred December 23, 1971 and was reported by letter dated December 30, 1971. It was concluded that the problem was due to the intermittent or improper operation of the motor package brake.

Corrective Action

As described above, CRDM No 35 was aligned with the CRDM in regulating Group 3 and operated normally when the regulating group was withdrawn to the upper electrical limit. Regulating Group 3 remained fully withdrawn until February 3, when a reactor trip was experienced due to a feed-water transient. CRDM No 35 operated normally on the reactor trip, as did all other CRDM.

The motor package for CRDM No 35 will be removed and examined during the current plant outage. Prior to returning the plant to service, CRDM No 35 will be tested for trip times and motor running currents. Any defects detected during the examination and testing will be corrected.

Conclusions

This incident and future incidents of a similar nature do not compromise reactor safety because the CRDM is still capable of being tripped. A failure in the motor package does not prevent proper functioning of the clutch unit. The de-energizing of the clutch separates the motor package from the remainder of the CRDM.

The effects of operation with one or more inoperable CRDM have been considered. Appropriate operating limitations are incorporated in the Technical Specifications to insure that hot channel factors and ejected rod worth limits are met. A similar occurrence could not go undetected because of the two rod deviation alarms.

Yours very truly,

Ralph B. Sewell (Signed)

RBS/map

Ralph B. Sewell
Nuclear Licensing Administrator

CC: Boyce H. Grier
USAEC