



**Consumers  
Power  
Company**

**COPY**

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Director of Nuclear Reactor Regulation  
US Nuclear Regulatory Commission  
Washington, DC 20555

DOCKET 50-255, LICENSE DPR-20  
PALISADES PLANT

This letter is written to provide a final report of the investigation results regarding the failure of control rod No 27 to insert. This failure occurred July 13, 1975 and was reported in UE-75-5 on July 23, 1975. At the time the July 23 report was filed, a detailed investigation of the CRDM had not been performed because the plant was still operating. On July 27, 1975 the plant was shut down to repair this and another CRDM.

During this shutdown, a follow-up investigation was performed. The brake assembly was disassembled and inspected. During the inspection it was found that the rotating element of the brake assembly was loose. One of the set screws had backed out of the rotating element causing the element to loosen which could result in an improper air gap between the stationary disk and the rotating disk. An air gap which is under the minimum tolerance places a high resistance on the motor rotation and prohibits rod motion. An air gap which is greater than the minimum tolerance would allow the rod to drift after the motor was de-energized. These situations do not interfere with the ability to trip a control rod. The loosening of the rotating element allows the air gap to become nonuniform which interferes with normal control rod movement. This failure mechanism has been previously experienced in the past at Palisades, primarily in 1972.

It is presently planned that all 45 CRDM brake assemblies will be inspected during the next extended plant outage.

Ralph B. Sewell (Signed)

Ralph B. Sewell  
Nuclear Licensing Administrator

CC: JGKeppler, USNRC  
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