



Consumers  
Power  
Company

COPY

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

July 19, 1974



Mr. John F. O'Leary, Director  
Directorate of Licensing  
US Atomic Energy Commission  
Washington, DC 20545

Re: Docket 50-255  
License DPR-20  
Palisades Plant

Dear Mr. O'Leary:

By letter dated May 24, 1974, Consumers Power Company reported an event which was discovered on May 14, 1974, and tentatively classified as an abnormal occurrence (74-08). As the investigation conducted as of May 24, 1974 had not revealed the purpose of the restraint or the cause of the restraint pulling out of the concrete, the report was preliminary in nature. The investigation has now been completed and the attached abnormal occurrence report is submitted.

Yours very truly,

Ralph B. Sewell (Signed)

RBS/ds

Ralph B. Sewell  
Nuclear Licensing Administrator

CC: JGKeppler,  
USAEC

8308230544 740813  
PDR ADDCK 05000255  
S PDR

6723

COPY SENT REGION

ABNORMAL OCCURRENCE REPORT - PALISADES PLANT

1. Report No - AO 74-08, Docket 50-255
- 2A. Report Date - July 19, 1974
- 2B. Occurrence Date - May 14, 1974
3. Facility - Palisades Plant
4. Identification - Failure of Seismic Class 1 Pipe Restraint
5. Condition Prior to Occurrence - Cold Shutdown
6. Description - Plant operators discovered that a horizontal pipe restraint on the suction line of the low-pressure safety injection pump P-67B was pulled loose from the concrete pillar which it was mounted during the evening of May 14, 1974. The 5/8" anchor bolts had pulled out of the concrete.
7. Designation of Apparent Cause - The restraint failure apparently occurred as a result of a water hammer, possibly caused by air in the low-pressure safety injection pump suction line. Air could have been introduced into the system during the completion of the testing and fill of the sodium hydroxide system. A water hammer force could impose significant tension and shear force on the anchor, thereby causing the failure.
8. Analysis of the Occurrence - The 5/8" anchor bolts have a conservative working design resistance to pull out of 1,000 lb/bolt. The calculated design load for the restraint is 1,500 lb, this being the absolute sum of the thermal load and the load from the design bases earthquake. As there are four 5/8" cinch anchors, it is concluded that the design of the pipe restraint is adequate for its intended purpose.

No loss of redundancy of essential safety equipment occurred due to this failure as the plant was in a cold shutdown condition. As we do not anticipate a refill of sodium hydroxide system, there should be no recurrence of water hammer in this line. It is believed that the restraint would have performed its designed function under seismic conditions.

9. Corrective Action -
  - a. The restraint anchor has been relocated slightly to place the expansion anchor bolts in shear instead of tension and to place the concrete in compression instead of shear.

- b. The restraint specifications and design calculation results will be reviewed prior to returning the plant to service.
- c. Applicable operating procedures will be reviewed and revised as necessary to ensure similar abnormal situations do not occur.

10. Failure Data - None