



Consumers
Power
Company

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0550

December 9, 1982

Dennis M Crutchfield, Chief
Operating Reactor Branch No 5
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - SEP TOPIC III-5.A, EFFECTS OF PIPE BREAK ON STRUCTURES,
SYSTEMS AND COMPONENTS INSIDE CONTAINMENT

Consumers Power Company letter dated August 16, 1982 submitted a draft report by EDS Nuclear, Inc. entitled "Systematic Evaluation Program, High Energy Line Break Inside Containment, Palisades Nuclear Station, Phase IV Summary of Results, Rev. B." As described in this report, the number of unresolved break locations was reduced to thirteen. However, as indicated in our August 16, 1982 letter, this report was incomplete due to the ongoing fracture mechanics evaluations of the remaining 13 break locations and the fact that Consumers Power Company comments of Phase IV had not been incorporated.

The attached report by EDS Nuclear, Inc. entitled "Systematic Evaluation Program, High Energy Line Breaks Inside Containment, Palisades Nuclear Station, Phase IV Summary of Results, Rev. 0," incorporates Consumers Power Company comments, provides the results of the fracture mechanics analysis, and describes the results of high energy line break for all postulated breaks on the 30 high energy lines. All but one high energy line break have been resolved. The remaining postulated condition in the 3 inch pressurizer spray line is a pipe whip interaction with a cable tray containing power cables to hydrogen recombiner M69B.

The postulated break of the pressurizer spray line is assumed as a double ended guillotine rupture that results in the whipping pipe striking the cable tray approximately 20-feet from the pipe. A preliminary leak before break fracture mechanics analysis shows that a stable 90° crack with a leak rate of approximately 0.1 gpm. A leak rate of this magnitude is probably too small to be readily detectable by present in-plant leak detection equipment. However, the leak would be detected in the daily calculation of the primary coolant inventory. Based upon the preliminary deterministic fracture mechanics analysis, Consumers Power Company believes that the possibility of the 3-inch pressurizer spray line break resulting in a pipe whip is unlikely. Therefore, the need to modify the plant to add whip restraints or a barrier to protect the target cable tray is unwarranted. Furthermore, a modification to add local leak detection to monitor one weld is also not warranted. The weld

8212130224 821209
PDR ADOCK 05000255
P PDR

OC1204-UU00A-NLUZ

A035

DMCrutchfield, Chief
Palisades Plant
SEP TOPIC III-5.A
December 9, 1982

2

associated with the break location is presently examined to ASME Section XI Class 1 requirements and is scheduled for inspection during the 1985 refueling outage.

The postulated break has been listed as unresolved in the enclosed evaluation due to the severance of the power cables to the hydrogen recombiner coupled with a single failure of the other diesel generator supplying power to the redundant hydrogen recombiner. Because the recombiner is not an active component, a single failure of it solely need not be considered.

Following a small break LOCA of the 3-inch pressurizer spray line, the hydrogen recombiner is not needed until a 2% hydrogen volume concentration is reached in containment. For comparative purposes calculations performed for the Palisades containment show a 2% volume percent of hydrogen volume concentration is not reached until 100 hours have elapsed following a DBA. Plant operating procedure ONP-22 requires a hydrogen recombiner to be energized by the time hydrogen concentration has reached 2%. If at that time the recombiner is found to be inoperative, due to cable severance, there would be adequate time available to restore power to the redundant hydrogen recombiner before a combustible mixture of 4% is reached at about 350 hours. It is reasonable to assume that given this time frame of 350 hours associated with a DBA, the diesel generator malfunction will be corrected or offsite power will be restored.

In summary, Consumers Power Company believes the need to modify the plant as a result of postulated rupture resulting in a leak in the 3-inch pressurizer spray line is unwarranted. Consumers Power Company considers the inservice inspection of the particular weld location to be adequate resolution of the issue. Furthermore the loss of a hydrogen recombiner as a result of postulated small break LOCA would not degrade the plant's ability to mitigate the effects of the accident. Finally, Consumers Power Company believes that this submittal constitutes completion of SEP Topic III-5.A.



Kerry A Toner
Senior Licensing Engineer

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

OC1282-0005A-NL02