

October 8, 1993

Docket No. 50-255

Mr. Gerald B. Slade
Plant General Manager
Palisades Plant
Consumers Power Company
27780 Blue Star Memorial Highway
Covert, Michigan 49043

Dear Mr. Slade:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON PALISADES PLANT
REGARDING THE REPORT ON THE PRESSURIZER SAFE END CRACK
(TAC NO. M87760)

The NRC staff has performed a preliminary review of your report dated October 7, 1993, documenting your engineering analysis and root cause evaluation of the recent pressurizer safe end crack at the Palisades plant.

Based on a preliminary review, the staff has concluded that additional information is necessary for the staff to perform an adequate review of the subject report. Enclosed is a list of questions which you should respond to in writing prior to our proposed meeting on October 12, 1993.

Please contact me should you have any questions regarding this request.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by

Anthony H. Hsia, Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

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P PDR

Enclosure:
Request for Additional Information

cc: See next page

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Mr. Gerald B. Slade
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ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

Request for additional information regarding Consumer's Power's engineering analysis and root cause evaluation report dated October 7, 1993 for pressurizer safe-end crack at Palisades plant.

1. Provide reference (1).
2. Provide metallurgical evaluation report including Huey test results.
3. Docket the crack growth analysis referenced on page 7 in the Engineering Analysis and Root Cause Evaluation Report.
4. Based on an estimate of the maximum flaw size that could exist after completion of the NDE performed, provide an estimate of the time required for the crack to grow through-wall. Include assumptions on stress levels and crack growth rates.
5. Provide a discussion of the safety significance of postulated failures of the PORV, spray relief valve, and surge lines.
6. Provide 3rd party evaluation of the RT examinations for the PORV line. What were the conclusions from review of the original Radiography (RT)? Was the crack present from construction?
7. Provide dimensioned sketches of the PORV repair weld, spray Safe-End (SE) and surge line SE.
8. What is the source of the reported yield strengths?
9. We have data to show the heat affected zone (HAZ) is harder than base metal. How was the value for strength of HAZ in crack growth rate analysis determined?
10. What was the margin-to-failure for the cracked PORV nozzle safe-end?
11.
 - a. What are the critical through-wall crack lengths for field welds in the pressurizer PORV line safe-end, the pressurizer spray line safe-end and the surge line safe-end under normal and faulted loading conditions?
 - b. What leakage rate could be reliably detected from the pressurizer PORV line safe-end, the pressurizer spray line safe-end and the surge line safe-end under normal operating conditions, and how do these leakage rates compare to the leakage rates that would be associated with the critical through-wall flaws for each of these lines under normal operating conditions.
 - c. Guidance on how to perform these calculations is provided in draft NRC Standard Review Plan 3.6.3. Compare the results of your analysis with the factors of safety on load, crack size and leak detection specified in the SRP.

- d. Discuss the symmetry or asymmetry of the stress distributions in the subject lines and the potential for symmetric versus asymmetric crack growth.
12. Were the three pressurizer safety valve line safe-ends subject to weld repairs during or after fabrication? If they were subjected to repairs or if it cannot be determined that they were not subject to repairs, perform analyses as described in question 11, above, for these lines.
13. Are there any plans to instrument the pressurizer spray line in order to better quantify the thermal stresses in that line?
14. Discuss the potential for water hammer in the PORV line and the pressurizer spray line.
15. Describe the examinations performed on the pressurizer surge line nozzle during the 1987 inspection. If these examinations were not optimized for detection of IGSCC, will IGSCC optimized examinations be performed prior to plant restart?