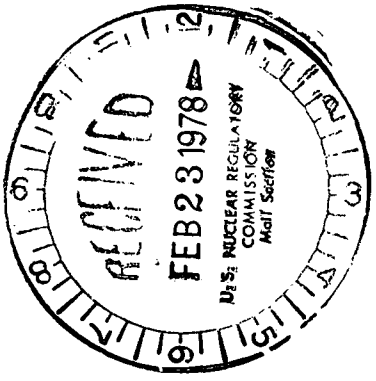
Consumers Power Company

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

February 21, 1978



Director of Nuclear Reactor Regulation
Att: Mr Albert Schwencer, Chief
Operating Reactors Branch No 1
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - STEAM GENERATOR
OPERATING ALLOWANCE - PROPOSED
TECHNICAL SPECIFICATIONS CHANGE

Amendment No 33 dated January 9, 1978 to the Palisades Plant Provisional Operating License required that a steam generator operating allowance for future degradation be approved as a Technical Specifications change prior to the next start-up following an inspection.

The attached proposed Technical Specifications changes include the required changes to Technical Specifications. A preliminary report of the inspection results of the most recent steam generator inspections was presented at the February 21, 1978 meeting with the NRC staff.

David P Hoffman (Signed)

David P Hoffman
Assistant Nuclear Licensing Administrator

CC: JGKeppler, USNRC

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CONSUMERS POWER COMPANY
Docket 50-255
Request for Change to the Technical Specifications
License DPR-20

For the reasons hereinafter set forth, it is requested that the Technical Specifications contained in Provisional Operating License DPR-20, Docket 50-255, issued to Consumers Power Company on October 16, 1972 for the Palisades Plant be changed as described in Section I below:

I. Change

Replace the present Technical Specification 4.14 with the attached Technical Specification 4.14 (Attachment 1).

II. Discussion

The major change to Technical Specification 4.14 is the inclusion of operating allowances tabulated in a new Table 4.14.1. The bases for these are provided in the text of preliminary inspection results presented at the February 21, 1978 meeting with the NRC staff. The change to Technical Specification 4.14.2 is proposed because it became unnecessary to inspect 600 intersections with the rotational ECT probe. The other changes to Paragraph 4.14.3 and the bases are editorial.

III. Conclusion

Based on the foregoing, both the Palisades Plant Review Committe and the Safety and Audit Review Board have reviewed the proposed changes and recommend their approval.

CONSUMERS POWER COMPANY

By C R Bilby (Signed)
C R Bilby, Vice President
Production & Transmission

Sworn and subscribed to before me this 21st day of February 1978.

Linda R Thayer (Signed) (SEAL)
Linda R Thayer, Notary Public
Jackson County, Michigan
My commission expires July 9, 1979.

ATTACHMENT 1

4.14 Augmented Inservice Inspection Program for Steam Generators

Applicability

Applies to the tubes within both steam generators.

Objective

To provide assurance of continued integrity of the steam generator tubes over their service lifetime.

Specification

4.14.1 Inspections will be made at a frequency not less than 12 nor more than 24 calendar months after the previous inspection. Tube inspection requirements will include inspection of all unplugged tubes with an *ECT indication of greater than or equal to 30% in either of the previous two inspection periods. The conventional, circumferentially wound ECT pull type probe shall be used to inspect all unplugged tubes for which an ECT indication greater than or equal to 30% was noted in either of the two previous ECT inspections.

In addition, a random sample of 2% of the tubes in the hot leg and 1% of the tubes in the cold leg of each steam generator will be inspected using the conventional, circumferentially wound ECT probe.

For the purposes of this Technical Specification, "tubes" refers to that portion of the steam generator U-tube from the point of entry on the cold leg side to the top support of the cold leg, or from the point of entry on the hot leg side completely around the U-bend to the top support of the cold leg.

*ECT = Eddy Current Test

4.14.2 Inspection techniques, capable of detecting flaws in the presence of tube support plates, shall be used to inspect all accessible tube/tube support plate intersections where an ECT indication was present during the last inspection which was greater than or equal to 45% but cannot be interpreted in the current inspection due to the presence of dents.

In addition, the following shall apply for areas which could not be inspected due to dents in the last inspection. Additional intersections shall be selected for special examination to assure that all accessible previous ECT indications are inspected when their last recorded ECT reading plus the appropriate operating allowance from Table 4.14.1 exceeds the Maximum Allowable Degradation specified in Table 4.14.2. If such indications, regardless of accessibility, are not inspected, the repair criteria of 4.14.3 shall apply for sleeving or plugging.

4.14.3 When inspection reveals that the tube degradation plus an NRC-approved appropriate operating allowance (for future degradation) is greater than the maximum allowable degradation specified in Table 4.14.2, the tube shall be declared to be defective and tube plugging or sleeving shall be performed.

In determining that a defect exists at a given tube location, indications from several ECT's may be averaged during a given inspection, but such averaging shall be based on not less than three ECT's.

4.14.4 Operating allowances for future degradation are tabulated in Table 4.14.1.

4.14.5 Sleeves will be installed such that, considering the axial location tolerances, swaging does not take place in an area of known degradation. A base line ECT inspection of all newly installed sleeves shall be performed. In addition, all previously installed sleeves shall be inspected or plugged during subsequent steam generator tube inspections.

Basis

Consumers Power has concluded that the change from coordinated phosphate to volatile chemistry control for the secondary side of the steam generators has reduced the previous corrosion rate. The inspection program provides for verifying that the corrosion has been arrested for quickly identifying any additional corrosion or for identifying other problems.

The inspection program is also consistent with current industry practices and includes appropriate measures to identify additional degradation of the Palisades steam generators. The operating allowance will be and the repair criteria has been developed based on comparative results between steam generator inspections with consideration given to defect type, location, past corrosion rate observed, etc.

Calculations have been performed to demonstrate that a tube uniformly thinned to 36% of its original nominal wall thickness (64% degradation) can withstand a differential pressure of 1380 psi. Likewise, a sleeved tube can withstand the same differential pressure when the limits in Table 4.14.2 are observed. Combustion Engineering, Inc Report No

CEN-59(P) "Palisades Steam Generator Tube Repair by Sleeving," dated August 26, 1977, contains the analytical and test results of tube sleeving.

In dented regions when the presence of a tube support plate tends to cause interference in the eddy current signals, the standard ECT inspection technique will not be able to detect flaws embedded in these regions. However, there are several advanced inspection probes under development which have been shown to be effective in detecting flaws by screening out the interference signals caused by the presence of the tube support plates or dents.

TABLE 4.14.1

Operating Allowances

Affected Tubes	ECT Indications Other Than Multiple ECT Indications	Multiple ECT Indications
Tubes Inspected During 1978 ECT	5%	35%
Tubes Last Inspected During 1976 ECT	10%	*NA
Tubes Last Inspected During 1975 ECT	20%	*NA

* Not Applicable

TABLE 4.14.2

Maximum Allowance Degradation

Location	Maximum Allowable Degradation[5]
Unsleeved Sections	Degradation = 64%
Sleeved Section	
Region 1 [1]	Sleeve degradation = 34% and tube degradation exceeding the maximum allowable degradation for an unsleeved section. [4]
Region 2 [2]	Either (a) sleeve degradation = 25% when tube degradation in Region 1 exceeds the maximum allowable degradation for an unsleeved section; or (b) tube degradation to Region 2 equal to the maximum allowable degradation for an unsleeved tube [4]
Region 3 [3]	Tube degradation equal to the maximum allowable degradation for an unsleeved section.

Footnotes:

(1) The undeformed region of the tube/sleeve assembly containing the original imperfection requiring sleeving.

(2) The region containing the expansion joint. Specifically, the region of the tube/sleeve assembly bounded by lines approximately 1/4 inch and 2 inches inboard from the sleeve ends.

(3) The region of the tube/sleeve assembly containing approximately 1/4 inch of each end of the assembly.

(4) Degradation occurring in the parent tube at any location in a Region and degredation occurring in the sleeve at any location in the same Region that exceeds the applicable maximum allowable degradation will require tube plugging.

(5) Subtracted from these Maximum Allowable Degradation values shall be an appropriate allowance for future degradation as approved by the NRC as identified in 4.14.3.

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CC: JGKeppler, USNRC

Control #780550092

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