

Docket No. 50-255

June 17, 1977

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Consumers Power Company
ATTN: Mr. Dave Bixel
Nuclear Licensing Administrator
212 West Michigan Avenue
Jackson, Michigan 49201

Gentlemen:

The Commission has issued the enclosed Amendment No. 28 to Provisional Operating License No. DPR-20 for the Palisades Plant. This amendment consists of changes to the Technical Specifications in response to your request dated April 1, 1977.

This amendment extends the steam generator tube inspection interval by five months, from August 1977 to January 1978.

Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Original signed by

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:

1. Amendment No. 28 to DPR-20
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
See next page

OFFICE >	ORB #1	ORB #1	AD:OR	OT:EB	ORB #4
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SURNAME >					
DATE >	5/31/77	6/16/77	5/31/77	6/1/77	6/16/77

June 17, 1977

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CONSUMERS POWER COMPANY

DOCKET NO. 50-255

PALISADES PLANT

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 28
License No. DPR-20

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Consumers Power Company (the licensee) dated April 1, 1977, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B of Provisional Operating License No. DPR-20 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 28, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Karl R. Goller, Assistant Director
for Operating Reactors
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 17, 1977

ATTACHMENT TO LICENSE AMENDMENT NO. 28

PROVISIONAL OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Revise Appendix A as follows:

Remove Page

3-20
4-68

Insert Revised Page

3-20
4-68

3.1 PRIMARY COOLANT SYSTEM (Contd)

Primary Coolant System Leakage Limits

Specifications

- a. If the primary coolant system leakage exceeds 1 gpm and the source of leakage is not identified, the reactor shall be placed in the hot shutdown condition within 12 hours and cold shutdown condition within 24 hours.
- b. If leakage from the primary coolant system exceeds 10 gpm, the reactor shall be placed in the hot shutdown condition within 12 hours and cold shutdown condition within 24 hours.
- c. If the specific activity of the secondary coolant in a steam generator exceeds 0.1 $\mu\text{Ci}/\text{gram}$ dose equivalent I-131, the reactor shall be placed in hot shutdown within 6 hours and in cold shutdown within the following 30 hours.
- d. The primary to secondary leakage in a steam generator shall not exceed 0.3 gpm for any period of steady state operation greater than 24 consecutive hours.

During periods of start-up and major load changes, when the leakage measurement sensitivity is reduced, the calculated leakage shall not exceed 0.6 gpm for any period of greater than 24 consecutive hours.

- e. If during the remainder of Cycle 2 operation primary to secondary steam generator leakage exceeds those limits specified in Section 3.1.5.d above, the plant shall be shutdown and the steam generator inspection requirements of Section 4.14 shall be implemented or NRC concurrence shall be received for proposed remedial action.

Basis

Leakage directly into the containment indicates the possibility of a breach in the primary coolant envelope. The limitation of 1 gpm for a source of leakage not identified is sufficiently above the minimum detectable leakage rate to provide a reliable indication of leakage. (1) The limit is held low to minimize the chance of a crack progressing to an unsafe condition without detection and proper evaluation by the technical staff.

When the source of leakage can be identified, the situation shall be evaluated to determine if operation can safely continue. This evaluation will be performed by the Plant Operating Staff and will be documented in writing and approved by either the Plant Superintendent or Assistant Plant Superintendent. Under these conditions, a maximum allowable primary coolant leakage rate of 10 gpm has been established. This does not include the primary coolant pump seal leak off that is piped to the volume control tank, which is not considered "leakage from the primary coolant system. A primary coolant leakage to the

4.14 Augmented In-Service 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 At the end of no more than 20 calendar months* from the date of initial criticality after March 15, 1976, an inspection of the steam generator tubes shall be conducted. Tube sampling requirements will be as identified in Regulatory Guide 1.83, "In-Service Inspection of Pressurized Water Reactor Steam Generator Tubes," (issued July 1975) as it applies to inspections after the baseline inspection.
- 4.14.2 Subsequent inspections will be made thereafter at a frequency no less than the inspection intervals specified in Regulatory Guide 1.83 (issued July 1975).* Tube sampling requirements will be as identified in Regulatory Guide 1.83 (issued July 1975).
- 4.14.3 Any steam generator tube with an imperfection of 65% or greater wall penetration shall be considered an unacceptable defect. The plugging limit shall be determined by deducting an appropriate operating allowance from the unacceptable defect (65%) stated above. Table 4.14 describes the operating allowance to be deducted and is presented as a function of defect location type, etc. Indications may be confirmed by averaging during a given inspection, but such average shall be based on not less than three readings.

*Inspection intervals specified in Section 4.14 are not subject to the 25% extension otherwise permitted by Paragraph 4.0.2.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 28 TO PROVISIONAL OPERATING LICENSE NO. DPR-20

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

Introduction

By letter dated April 1, 1977, Consumers Power Company (the licensee) requested a change to the Technical Specifications appended to Provisional Operating License No. DPR-20 for operation of the Palisades Plant (the facility) in Van Buren County, Michigan. The proposed change would extend the steam generator tube inspection interval by five months, from August 1977 to January 1978.

Discussion

On April 26, 1976, we issued Amendment No. 20 to DPR-20 which specified a 15-month interval from the date of the first reactor criticality after March 15, 1976 until the next steam generator tube inspection. Since that criticality occurred on May 6, 1976, the facility would have to be shut down by August 6, 1977 for the next tube inspection. The licensee has proposed to delay this inspection by five months until January 1978.

Evaluation

Amendment No. 20 established a revised plugging limit for the Palisades steam generator tubes. As specified, any tube which is determined to have an imperfection of 65% or greater wall penetration shall be considered to have an unacceptable defect. The plugging limit is determined by deducting an appropriate operating allowance from the unacceptable defect (65%) described above. The operating allowance to be deducted is a function of defect type and location and varies from 10% for most areas of both steam generators, up to 35% for those areas with multiple Eddy Current Test (ECT) indications. In our Safety Evaluation, we concluded that these operating allowances would conservatively account for any tube degradation until the next inspection and provided reasonable assurance that tube integrity would be maintained. The 15-month inspection

interval selected was based on our estimated additional wastage during this period of 2.16% and 7.75% for the tubes in steam generators A and B, respectively. In addition, an additional wastage of 8.5% was estimated for selected higher corrosion rate areas within steam generator B. These figures were based on the mean rates of wastage observed during the previous operating period (9 months). Should the above predicted 15-month wastage rate continue for an additional 5 months, the projected wastages would increase to mean values of only 2.89% and 10.33% for steam generators A and B, respectively, and to 11.7% in the selected areas of steam generator B. Such wastage would still be within the operating allowance previously established for continued operation without plugging, with the exception that the predicted 10.33% projected wastage exceeds, somewhat, the 10% operating allowance for steam generator B. We conclude that this .33% difference would not be significant.

It should be noted that in 1975, Palisades shifted to the all volatile treatment (AVT) type of steam generator chemistry control from the previously used phosphate treatment method. In the case of all other facilities which have shifted to the AVT method, it has been observed that the amount of tube wastage has been significantly reduced. Although minor differences exist in the steam generator designs involved, it is expected that the wastage rates at Palisades have likewise decreased and that therefore, the rates discussed above are, in fact, very conservative.

The tube "denting" phenomenon which has been observed to varying degrees at other facilities with U-tube steam generator design, was detected to a minor extent during the February 1976 steam generator inspection at Palisades. The severity of this denting was less than 4 mils and was observed primarily in steam generator B. The egg-crate design of the tube support plate in the Palisades steam generators does not lend itself to the type of crevice and deposit buildup observed in those designs where wide spread denting has been experienced. In view of the above, the additional 5-month operating period requested by the licensee is not expected to result in any significant additional denting in the Palisades steam generators.

The Palisades Plant steam generator secondary side water chemistry over the past 10 months has been closely monitored by the licensee and controlled within the limits set to minimize steam generator tube corrosion. In addition, the plant was shut down 5 times during 1976 and 3 times to date during 1977 to plug condenser tube leaks as a precaution to ensure that the steam generator chemistry was continually maintained within administrative and Technical Specification limits. These precautions are important because of the major impact that main condenser leakage has on the secondary side water sodium levels and the resultant tube corrosion that could result from any increase in these sodium levels. Due to these measures on the part of the licensee, steam generator tube corrosion is effectively minimized.

The present Technical Specifications include limiting conditions for operation for both reactor coolant leakage into the secondary side of a steam generator and the maximum specific activity of the secondary coolant in a steam generator. The reactor coolant leakage into a steam generator shall not exceed 0.3gpm for any period of steady state operation greater than 24 hours and during periods of start-up and major load changes, the calculated leakage shall not exceed 0.6gpm for any period of greater than 24 consecutive hours. If the specific activity of the secondary coolant in a steam generator exceeds 0.1 μ Ci/gram dose equivalent Iodine-131, the reactor shall be placed in hot shutdown within 6 hours and in cold shutdown within the following 30 hours. The licensee's most sensitive method of determining the reactor coolant to secondary leakage rate is the measurement of Xenon-133 in the condenser air ejection off-gas system. At present, an essentially constant leakage rate of approximately 0.003gpm (680 ml/hour) exists. This leakage is approximately equal to that detected near the end of Cycle 1 and as reported by the licensee in letters dated August 5 and 14, 1975. In view of the above it is concluded that adequate requirements exist to place the plant in a safe condition should a substantial tube leak develop and that the licensee has demonstrated the ability to detect minor leakage significantly less than the maximum allowable leakage rate. In addition, as indicated above, the leakage rate presently observed has remained consistently low over a substantial period of operation which tends to indicate a stable condition with no trend toward additional steam generator tube degradation. This stable condition lends confidence to the conservatism of the wastage rate projections referred to above. If during the remainder of Cycle 2 operation, primary to secondary steam generator leakage exceeds those limits specified in Technical Specification Section 3.1.5.d, the plant shall be shutdown and the steam generator inspection requirements of Section 4.14 shall be implemented, or NRC concurrence shall be received for proposed remedial action. The licensee has agreed to a Technical Specification change requiring the above action.

In the event that an unscheduled plant outage to cold shutdown conditions should occur during the proposed 5-month extension period which is not of sufficient duration to conduct a steam generator tube inspection, we have concluded that such an inspection should not be required. The basis for this conclusion is that we do not consider it necessary to extend such an outage to allow inspection of the tubes solely for the purpose of obtaining additional information on the status of the tubes when a complete inspection will be performed within at least 5 months.

The requested extension of the inspection period to 20 months would be within the guidelines of Regulatory Guide 1.83 "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes", which allows subsequent inspections to be conducted between 12 to 24 months after the previous inspection, provided leakage rates are not exceeded.

Having completed our safety review of the licensee's proposal, we have made the following conclusions: (1) the 5-month extension is not expected to result in any significant additional degradation in tube integrity, (2) no significant amount of steam generator tube denting is expected to occur (3) steam generator secondary chemistry which has been maintained within required limits, is expected to minimize any additional wastage, (4) the present Technical Specification limits would require plant shutdown should significant leakage occur and if the present leakage limits are exceeded, the licensee will perform the steam generator tube inspections identified in the Technical Specifications, and (5) the proposed inspection period is consistent with the guideline of Reg. Guide 1.83.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: June 17, 1977

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-255

CONSUMERS POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO PROVISIONAL
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 28 to Facility Operating License No. DPR-20, issued to Consumers Power Company (the licensee), which revised Technical Specifications for operation of the Palisades Plant, (the facility) located in Covert Township, Van Buren County, Michigan. The amendment is effective as of its date of issuance.

This amendment extends the steam generator tube inspection interval by five months, from August 1977 to January 1978.

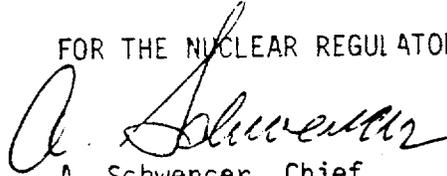
The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Notice of Proposed Issuance of Amendment to Facility Operating License in connection with this action was published in the FEDERAL REGISTER on May 5, 1977 (42FR22966). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not

be prepared in connection with the issuance of this amendment. For further details with respect to this action, see (1) the application for amendment dated April 1, 1977. (2) Amendment No. 28 to License No. DPR-20, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, Michigan 49006. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 17th day of June 1977.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors