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Docket No. 50-255

APR 12 1978

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. 40 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 March 9, 1978, as supplemented by letter dated March 30, 1978.

This amendment authorizes changes that will enhance the performance and control of the Palisades Iodine Removal System.

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

Sincerely,

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures:
1. Amendment No. 40 to DPR-20
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
See next page

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DATE➤	4/12/78	4/12/78	4/12/78	4/12/78		

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

April 12, 1978

Docket No. 50-255

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

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Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

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cc w/enclosures:
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U. S. Environmental Protection
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*With CPC letter dated 3/9/78, and
a supplemental letter dated 3/30/78

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. 40
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 March 9, 1978, as supplemented by letter dated March 30, 1978, 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 Facility License No. DPR-20 is hereby amended to read as follows:

   "B. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 40 , 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

Dennis Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 12, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 40

PROVISIONAL OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Revise Appendix A as follows:

Remove	Replace
3-84	3-84

The revised page is identified by amendment number and contains vertical lines indicating the area of change.

3.19 IODINE REMOVAL SYSTEM

Applicability

Applies to the operational status of the Iodine Removal System.

Objective

To define those conditions when it is necessary to have the Iodine Removal System operable.

Specification

3.19.1 During power operation the Iodine Removal System shall be operable with:

a. The Iodine Removal Hydrazine Tank (T-102) containing 270 $\pm$ 17 gallons of 15.5 $\pm$ 0.5 percent by weight of hydrazine solution with a cover gas pressure of 11.2 $\pm$ 2 psig.

b. The Iodine Removal Make-up Sodium Hydroxide Tank (T-103) containing a minimum 4200 $\pm$ 300 gallons of 30.0 $\pm$ 0.5 percent by weight sodium hydroxide solution.

c. T-102 capable of supplying hydrazine solution to the water from the SIRW tank (T-58) and T-103 capable of supplying sodium hydroxide solution to the suction header between the containment sump and the spray and injection pumps.

d. With the Iodine Removal System inoperable, restore the system to operable status within 72 hours or be in hot shutdown condition within the next 48 hours until operable status is achieved.

Bases

The Iodine Removal System acts in conjunction with the containment spray system to reduce the post-accident level of fission products in the containment atmosphere. Hydrazine is added to the water from the SIRW tank after a LOCA to provide for iodine retention. Sodium Hydroxide is added to the recirculated water after a LOCA to establish a neutral pH.

References

FSAR, Section 6.4.

FSAR, Section 14.22.

Consumers Power Company Report, "Palisades Plant Iodine Removal System Evaluation," December 1977.

Consumers Power Company Report, "A Hydraulic Evaluation of the Proposed Modification to the Hydrazine Injection System at the Palisades Plant," March 6, 1978.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. TO LICENSE NO. DPR-20

CONSUMERS POWER COMPANY
PALISADES PLANT
DOCKET NO. 50-255

Introduction

By letter dated March 9, 1978, as supplemented by letter dated March 30, 1978, the Consumers Power Company (the licensee) requested changes to Section 3.19 of the Technical Specifications for Palisades Plant. This letter was the result of a re-evaluation of the Palisades Plant containment Iodine Removal System which was committed to by the licensee and noted in the staff Safety Evaluation (SE) dated November 1, 1977 for Amendment No. 31 to Provisional Operating License DPR-20. The proposed changes are to enhance the performance and control of the Palisades Iodine Removal System.

Background

The Iodine Removal System feeds chemicals into the containment spray water to reduce radioactive iodine in the containment atmosphere and to control the pH of the containment spray. The original system used sodium hydroxide gravity fed from a tank to the containment spray lines. The system incorporated a timer with a 6.4-minute time delay between receipt of a containment high-pressure signal and the opening of valves to allow injection of the sodium hydroxide. The purpose of the 6.4-minute time delay was to prevent inadvertent opening of the valves and spraying of the sodium hydroxide solution on equipment in the containment building in the event of spurious operation or in the event of an incident which caused a containment pressure increase without fission product release. In 1977, the Iodine Removal System was reevaluated in conjunction with our review of the request to increase power from 2200 to 2530 MWth. As a result of this reevaluation, the Iodine Removal System was modified to feed hydrazine rather than sodium hydroxide into the containment spray water during the initial injection of containment spray. The change to hydrazine was performed to increase the iodine removal efficiency of the sprays during injection and thus reduce potential offsite doses resulting from a Loss of Coolant Accident (LOCA). The sodium hydroxide feed was retained for long term control of pH in the spray water; initiation of the feed was changed from automatic to manual. The time delay associated with the time for the hydrazine tank isolation valves was reduced from 6.4 minutes to one minute to increase the potential iodine removal by the hydrazine immediately after a LOCA.

The results of the staff evaluation were reported in the staff safety evaluation report for the Palisades Amendment No. 31 dated November 1, 1977. In that evaluation we noted that the licensee had committed to study the containment iodine removal system to determine where improvements could be made to further reduce the potential consequences of the design basis loss of coolant accident. The licensee specifically committed to the following: 1) provide additional assurance that gravity feed of hydrazine to the containment spray during injection would operate as expected, 2) consider the elimination of the time delay feature controlling the opening of the hydrazine tank isolation valves, and 3) confirm that the means for long term pH control of the containment spray during recirculation are adequate. The licensee reported the results of the study in its March 9, 1978 letter.

Discussion

Based on his study of the containment iodine removal, as discussed in his letter dated March 9, 1978, the licensee modified the design of the hydrazine system to remove reliance on a regulated nitrogen supply subject to a single valve, whose failure could incapacitate the system. The proposed change to the Technical Specifications for the hydrazine solution which results from this design change decreases the required volume of hydrazine solution from 350 gallons to 270 gallons, increases the concentration of hydrazine in solution from 5.5 to 15.5 percent by weight and increases the cover gas pressure in the tank from about 0.1 psig to 11.2+ 2 psig.

To assure that sufficient hydrazine is added to the containment spray during injection by gravity, the licensee has provided data from tests of the hydrazine addition system. The licensee ran a single measured drawdown of the Refueling Water Tank and Hydrazine Tank during the February 1978 refueling. This test was compared with the RETRAN computer code to verify that the code can accurately predict the performance of the iodine removal system and therefore, can be used to determine the adequacy of the modified system.

The licensee has considered the elimination of the timer which controls the opening of the hydrazine tank isolation valves. As noted above, the licensee has reduced the time delay to one minute, the minimum delay permitted by the time-delay timer circuit. We have been informed by the licensee that the time delay is still considered to be desirable to prevent injection of hydrazine when it is not needed. Analyses by the licensee indicate that even if the timer were removed, one half minute would elapse between the time of the containment high pressure signal

and injection of hydrazine into the containment atmosphere because of time needed for the hydrazine to flow through the system. The licensee has stated that the difference between the delay assumed in the staff calculation of doses and the inherent system delay is only one half minute and that this difference only represents about 1.8 rem of the 182 rem exposure at the Exclusion Area Boundary for containment leakage given in the SE for Palisades Amendment No. 31 dated November 1, 1977. Because this one-minute time delay represents such a small contribution to the overall exposure he concluded that it is not necessary for this delay to be removed.

Also, the licensee has provided an evaluation of the variation in pH associated with the addition of the sodium hydroxide to possible solutions of boric acid which could be released in the event of an accident. The figures the licensee presented in his letter dated March 9, 1978, included experimental measurements of the pH.

A proposed change to the Technical Specifications for the sodium hydroxide solution would decrease the required volume of sodium hydroxide solution from the minimum of 5100 gallons to a minimum of 3900 gallons and increase the concentration of sodium hydroxide in solution from 23.0+ 0.5 to 30.0+ 0.5 percent by weight. This change in sodium hydroxide volume and concentration were proposed to allow operation with a lower liquid level in the tank which improves the capability to monitor and control the volume with the existing level indicators.

Evaluation

We have independently reviewed and evaluated the proposed changes to the containment iodine removal system for Palisades. We agree that the change from the regulated nitrogen supply to the pressurized cover gas in the hydrazine tank would increase the reliability of the system. In addition, our evaluation of the licensees test report and calculations, indicates that the proposed limits on volume, and concentration of hydrazine and the limit on cover gas pressure would result in acceptable hydrazine concentrations in the containment spray. Moreover, this change eliminates reliance on a regulated nitrogen supply subject to a single valve whose failure could incapacitate the system.

We have reviewed the licensees analysis of the potential reduction in dose if the timer controlling the opening of the hyrdrazine tank isolation valves is removed and agree that the removal of the timer would not have a significant effect on dose. We conclude that the one-minute time delay associated with the timer is acceptable since the potential consequences of the LOCA with the timer installed remain below the exposure guidelines of 10 CFR Part 100. Further, we have reviewed the licensee's justification for retaining a one-minute time delay associated with the timer, and conclude that it is reasonable.

The change in volume and concentration of sodium hydroxide would have no effect on the performance as previously evaluated but should increase the ability to control the volume to the required amount. Our evaluation of the proposed volume and concentration for the sodium hydroxide tank indicates that this volume and concentration would result in ranges of pH values in possible solutions that could exist during a LOCA which are acceptable if there is a maximum allowable volume specified for the Sodium Hydroxide Tank. The requirements on post-accident spray water chemistry are discussed in Standard Review Plan (SRP) 6.5.2. If the volume allowed in this tank is not greater than 4500 gallons, the maximum pH in the containment sump should not be greater than 11 which is recommended in Standard Review Plan 6.5.2. The licensee has agreed to this change in the Technical Specifications which establishes an upper limit of 4500 gallons.

The potential consequences of the LOCA based on the volume and concentrations in the Hydrazine and Sodium Hydroxide Tanks allowed by the Technical Specifications are given in the SE for Amendment No. 31 dated November 1, 1977. Although the proposed changes to Section 3.9.1 of the Technical Specifications do not further reduce the potential consequences of the LOCA, the proposal provides adequate assurance that the iodine removal rates assigned the Palisades Iodine Removal System in the SE for Amendment No. 31 is justified. The potential consequences of the LOCA remain less than the exposure guidelines of 10 CFR Part 100.

On the basis of the above, the proposed changes to Section 3.9.1 of the Technical Specifications for Palisades are acceptable.

To avoid any confusion in interpreting the proposed specification 3.19.1.a and 3.19.1.b, the symbols "w/o" in the specifications proposed by the licensee have been replaced by "percent by weight." The licensee has agreed to this change.

Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types, an increase in total amounts of effluents or an increase in power level and therefore will not result in any significant environmental impact. Having made this determination, we have concluded, 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 these amendments.

Conclusion

We conclude on the basis of the above considerations that the proposed changes to Section 3.19 of Technical Specifications are acceptable if Specification 3.19.1.b to the Technical Specifications is written:

> The Iodine Removal Make-up Sodium Hydroxide Tank (T-103) containing 4200 + 300 gallons of 30.0 $\pm$ 0.5 percent by weight sodium hydroxide solution.

We also have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Dated: April 12, 1978

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. 40 to Provisional 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.

The amendment authorizes changes that will enhance the performance and control of the Palisades Iodine Removal System.

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. Prior public notice of this amendment was not required since the amendment did not involve a significant hazards consideration.

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 March 9, 1978, as supplemented by letter dated March 30, 1978, (2) Amendment No. 40 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 12th day of April, 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors