

January 27, 1978

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Docket No. 50-255

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. 34 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 January 6, 1978.

This amendment allows both doors of the containment personnel air lock to be open during refueling operations and allows the removal of either one of two reactor vessel accelerated surveillance capsules during the second and fifth refueling outages.

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

Sincerely,

/s/

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

Enclosures:

1. Amendment No. 34 to DPR-20
2. Safety Evaluation
3. Notice

JRBuchanan  
CMiles  
BHarless  
JMcGough  
JSaltzman

cc w/encl:  
See next page

*W/d change from Branch SE of provided insert on rad protection procedures is included*  
1/24/78

OFFICE →	DOR:ORB#1	OELD	DOR:ORB#1	OT:EB	OT:EEB
SURNAME →	GGZech:1b	A. M. Mitchell	ASchwencer	L. J. ...	B. Grimes
DATE →	1/26/78	1/26/78	1/27/78	1/26/78	1/26/78



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

January 27, 1978

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Sincerely,

A handwritten signature in cursive script, appearing to read "A. Schwencer".

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

Enclosures:

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2. Safety Evaluation
3. Notice

cc w/encl:  
See next page

January 27, 1978

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Federal Activities Branch  
Region V Office  
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Chicago, Illinois 60604



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

CONSUMERS POWER COMPANY

DOCKET NO. 50-254

PALISADES PLANT

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 34  
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 January 6, 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 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. 34, 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



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

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: January 27, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 34  
PROVISIONAL OPERATING LICENSE NO. DPR-20  
DOCKET NO. 50-255

Revise Appendix A as follows:

Remove Pages

3-46  
3-47  
4-23

Insert Revised Pages

3-46  
2-47  
4-23

3.8

REFUELING OPERATIONS

Applicability

Applies to operating limitations during refueling operations.

Objective

To minimize the possibility of an accident occurring during refueling operations that could affect public health and safety.

3.8.1

Specifications

The following conditions shall be satisfied during any refueling operations:

- a. One door of the emergency air lock shall be properly closed. Whenever both doors of the personnel air lock are open during refueling operations, the equipment door shall be open and the ventilating system and charcoal filter in the fuel storage building shall be operating.
- b. All automatic containment isolation valves shall be operable or at least one valve in each line shall be closed.
- c. The containment venting and purge systems, including two radiation monitors that initiate isolation, shall be tested and verified to both be operable immediately prior to refueling operations. The two monitors shall be located on the containment fuel handling area level (elevation 649'), shall be part of the plant area monitoring system and shall employ one-out-of-two logic for isolation. During normal operation, these monitors will not initiate an isolation signal. A switch shall be provided so that isolation action can be initiated during refueling only.
- d. Radiation levels in the containment and spent fuel storage areas shall be monitored continuously.
- e. Whenever core geometry is being changed, neutron flux shall be continuously monitored by at least two source range neutron monitors, with each monitor providing continuous visual indication in the control room. When core geometry is not being changed, at least one source range neutron monitor shall be in service.
- f. At least one shutdown cooling pump and heat exchanger shall be in operation.

3.8. REFUELING OPERATIONS (Contd)

- g. During reactor vessel head removal and while refueling operations are being performed in the reactor, the refueling boron concentration shall be maintained in the primary coolant system and shall be checked by sampling on each shift.
  - h. Direct communication between personnel in the control room and at the refueling machine shall be available whenever changes in core geometry are taking place.
- 3.8.2 If any of the conditions in 3.8.1 are not met, all refueling operations shall cease immediately, work shall be initiated to satisfy the required conditions, and no operations that may change the reactivity of the core shall be made.
- 3.8.3 Refueling operation shall not be initiated before the reactor core has decayed for a minimum of 48 hours if the reactor has been operated at power levels in excess of 2% rated power.
- 3.8.4 The ventilating system and charcoal filter in the fuel storage building shall be operating whenever refueling operations are in process with the equipment door open, or whenever irradiated fuel is being handled in the fuel storage building.
- 3.8.5 When spent fuel which has decayed less than one year is placed in the tilt pit storage racks, the bulk water temperature in the tilt pit storage area must be monitored continuously to assure that the water temperature does not exceed 150°F. Monitoring will continue for 24 hours after any addition of fuel to the main pool or the tilt pit or when a failure of the spent fuel pool cooling system occurs.

Basis

The equipment and general procedures to be utilized during refueling are discussed in the FSAR. Detailed instructions, the above specifications, and the design of the fuel handling equipment incorporating built-in interlocks and safety features provide assurance that no incident could occur during the refueling operations that would result in a hazard to public health and safety. (1) Whenever changes are not being made in core geometry, one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. The shutdown cooling pump is used to maintain a uniform boron concentration.

The shutdown margin as indicated will keep the core subcritical, even if all control rods were withdrawn from the core. During refueling, the reactor refueling cavity is filled with approximately 250,000 gallons of borated water. The boron concentration of this water

Table 4.3.2

Miscellaneous Surveillance Items

<u>Equipment</u>	<u>Method</u>	<u>Frequency</u>
1. Regenerative Heat Exchanger		
a. Primary Side Shell to Tube Sheet Welds	Volumetric	5-Year Maximum Interval (100%)
b. Primary Head	Volumetric	5-Year Maximum Interval (100%)
2. Primary Coolant Pump Flywheels	Volumetric	100% Upper Flywheel Each Refueling

Table 4.3.3

Reactor Vessel Surveillance Coupon Removal Schedule

<u>Scheduled Refueling Interval</u>	<u>Capsule Removed</u>	<u>Estimated Target Past Neutron Fluence nvt (<math>n/cm^2</math>)</u>	<u>Integrated Power (MWD Thermal)</u>
2 or 5	A-60 <sup>(1)</sup>	$1.7 \times 10^{19}$	$1.73 \times 10^6$
2 or 5	A-240 <sup>(1)</sup>	$3.5 \times 10^{19}$	$3.97 \times 10^6$
5	W-290	$3.7 \times 10^{18}$	$3.97 \times 10^6$
5	T-330	-	$3.97 \times 10^6$
11	W-110	$9.3 \times 10^{18}$	$8.44 \times 10^6$
20	W-100	$1.7 \times 10^{19}$	$1.51 \times 10^7$
20	T-150	-	$1.51 \times 10^7$
25	W-280	$2.1 \times 10^{19}$	$1.89 \times 10^7$
35	W-260	$3.0 \times 10^{19}$	$2.63 \times 10^7$
39	W-80	$3.3 \times 10^{19}$	$2.93 \times 10^7$

(1) Since the Capsules A-60 and A-240 are similar, either may be removed during the second refueling. The remaining capsule (A-60 or A-240) will be removed during the fifth refueling.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 34 TO PROVISIONAL OPERATING LICENSE NO. DPR-20

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

Introduction

By letter dated January 6, 1978, as supplemented January 16, 1978, Consumers Power Company (the licensee) requested changes to the Technical Specifications appended to Provisional Operating License No. DPR-20 for operation of the Palisades Plant in Van Buren County, Michigan. The requested changes would (1) allow both doors of the personnel air lock to be open during refueling operations, and (2) allow the removal of either one of two reactor vessel accelerated surveillance capsules during the second and fifth refueling outages.

Discussion

The Palisades Technical Specifications presently require that at least one door in each air lock (personnel and emergency air lock) be properly closed during refueling operations. The objective of this specification, when originally issued, was to minimize the possibility that an accident occurring during refueling operations could affect public health and safety. However, at the same time, the Technical Specifications also allow the containment equipment door to be open provided the ventilating system and charcoal filter in the fuel storage building are operating whenever refueling operations are in progress. The basis for this latter specification is that any radioactivity which might inadvertently pass through the normally open equipment door would be handled by the charcoal filter. The flow through this filter would be about 7300 cfm during conditions following a radioactive release. The licensee has proposed to allow both doors of the personnel air lock to remain open during refueling operations to permit continuous personnel entrance and egress through the air lock. Due to the large number of workers entering and exiting containment during each shift (approximately 100), passage through the personnel lock (616-foot-level) cannot be efficiently performed if the personnel lock is operated in the standard mode. The licensee has

stated that (using current radioactive control practice) this is particularly a problem during egress when no more than three workers at a time can remove contaminated protective clothing in the personnel air lock. The licensee has also stated that this physical limitation would cause delays to the estimated 100 workers and would result in most people exiting by way of the equipment hatch (649-foot level) into the fuel pool area (at an alternate radiation control point) where the Technical Specifications allow the hatch to remain open. A longer exit pathway would therefore be required with commensurate longer stay times in radiation areas, resulting in higher personnel occupational exposure.

The licensee has estimated that by keeping the personnel air lock exit open at all times, the shorter residence time (as compared to egress from the equipment hatch) would cause a savings of 7 man-rem exposure. By maintaining this exit continuously open during refueling, radiation protection and welding personnel who operate welding controls can be stationed outside the personnel air lock during maintenance of the steam generator. Radiation protection personnel will be responsible for overseeing entry and egress procedures with respect to contamination and radiation exposure control of personnel and will also be responsible for TV and audio monitoring of personnel during steam generator work. This would reduce personnel exposures an additional 6 man-rem. By keeping both the personnel air lock and equipment hatch open, the ventilation system would allow air to enter containment through the personnel lock and flow out of containment through the equipment hatch to the fuel building ventilation system. Area and airborne radioactivity monitoring equipment would be stationed just outside the personnel air lock to continuously monitor the area.

With regard to the proposed change to the reactor vessel surveillance capsule removal schedule, the present Technical Specifications identify capsule A-60 to be removed during the second refueling and capsule A-240 to be removed during the fifth refueling. Since both capsules are of the accelerated type, are in symmetrical locations and contain like specimens, the licensee has proposed to allow the removal of either of these capsules during the second or fifth refueling.

## Evaluation

### Personnel Air Lock

We agree with the licensee that the present Technical Specifications restrict the movement of workers from containment during refueling outages and that using present radiation protection control point practices, this results in residence time in radiation areas greater than would be the case for the conditions proposed by the licensee in which continuous free access to and from containment would exist through the personnel air lock exit. The decrease in residence time associated with the proposed change would result in comparatively lower man-rem exposures.

The licensee's proposal is consistent with the NRC's policy that every reasonable effort should be made to maintain occupational radiation exposures as low as reasonably achievable (ALARA) and is therefore acceptable in this regard.

We have also reviewed the licensee's proposal to determine if the revised specification will decrease the plant's safety margin with respect to any postulated accident. The only accident which could be affected is the fuel handling accident inside containment. The staff's Safety Evaluation Report (SER) of March 7, 1970, for the Palisades Plant assumes all activity from a fuel handling accident is released after passing through the spent fuel area ventilation system (SFPVS) charcoal filters. Leaving the personnel hatch open during refueling would not alter the evaluation given in the SER since activity released in the containment would flow through the open equipment hatch and be exhausted through the SFPVS charcoal filter. This flow path has been verified by smoke tests performed at the open personnel hatch. The operability of the ventilation system including the charcoal filters is assured by the Technical Specifications. We have required that an additional Technical Specification provision be added to assure that the equipment hatch will be open whenever both doors in the personnel air lock are open. This will assure that the proper air flow direction will exist so that no possible back flow through the personnel air lock occurs. The licensee has agreed to this additional Technical Specification requirement. In view of the above, we conclude that there will be no increased safety hazard to the public and that radiological consequences will not differ significantly from those already analyzed in the SER.

#### Surveillance Capsules

The Palisades surveillance program contains two accelerated capsules (A-60 and A-240) and eight regular capsules. The proposed change in Table 4.3.3 would allow either of the two accelerated capsules to be removed during the number 2 outage and the remaining capsule to be removed during the number 5 outage with no change in schedule other than this interchangeability of two essentially identified capsules.

Other plants having a capsule design similar to that of Palisades have experienced difficulty in removing a particular capsule due to problems associated with the capsule upper end fitting. The added flexibility in the proposed interchangeability will minimize plant outages should a similar problem be encountered in removing a capsule during the upcoming outage number 2.

We have reviewed this proposed change and conclude that capsules A-60 and A-240 are in symmetrical locations, will be subjected to essentially identical fluences and contain test specimens made of base, HAZ and weld materials. Therefore, we conclude that the proposed change in surveillance capsule removal schedule will provide needed flexibility without reducing the effectiveness of the program. Furthermore, the proposed change does not violate any provisions of Appendix H, 10 CFR Part 50 and is therefore acceptable.

#### 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) 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.

Date: January 27, 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. 34 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.

This amendment allows both doors of the containment personnel air lock to be open during refueling operations and allows the removal of either one of two reactor vessel accelerated surveillance capsules during the second and fifth refueling outages.

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 January 6, 1978, (2) Amendment No. 34 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, NW., 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 27th day of January 1978.

FOR THE NUCLEAR REGULATORY COMMISSION



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