

June 8, 1995

Mr. Kurt M. Haas  
Plant Safety and Licensing Director  
Palisades Plant  
27780 Blue Star Memorial Highway  
Covert, MI 49043

SUBJECT: PALISADES PLANT - ISSUANCE OF AMENDMENT RE: SAFETY VALVE SETTING  
LIMITS (TAC NO. M91483)

Dear Mr. Haas:

The Commission has issued the enclosed Amendment No. 167 to Facility Operating License No. DPR-20 for the Palisades Plant. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated January 13, 1995, as supplemented April 12 and 27, 1995.

The amendment revises TS Section 3.1.7 to allow installed primary and secondary safety valve settings to be within a 3% tolerance of their nominal settings, but would require returning the valve settings to within 1% of the nominal settings if the valves are removed from the piping for maintenance or testing.

A copy of our Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by

Janet L. Kennedy, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosures: 1. Amendment No. 167 to DPR-20  
2. Safety Evaluation

cc w/encls: See next page

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DATED: June 8, 1995

AMENDMENT NO. 167 TO FACILITY OPERATING LICENSE NO. DPR-20-PALISADES

Docket File

PUBLIC

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140074



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

CONSUMERS POWER COMPANY

DOCKET NO. 50-255

PALISADES PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 167  
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 13, 1995, as supplemented April 12 and 27, 1995, 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;
  - 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 the license amendment and Paragraph 2.C.(2) of Facility Operating License No. DPR-20 is hereby amended to read as follows:

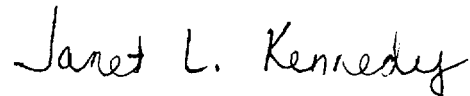
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Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 167, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Janet L. Kennedy, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: June 8, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 167

FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

REMOVE

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INSERT

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### 3.1.7 Primary and Secondary Safety Valves

#### Specification

- 3.1.7.1 The pressurizer safety valves shall be operable as specified in Table 3.1.7-1.

#### Applicability

Specification 3.1.7.1 is applicable when the plant is operating above COLD SHUTDOWN.

#### Action

With one or more pressurizer safety valves inoperable,

- a. The reactor shall be placed in HOT SHUTDOWN within 12 hours, and
- b. The reactor shall be placed in COLD SHUTDOWN within 48 hours.

Table 3.1.7-1  
Pressurizer Safety Valve Lift Settings

Valve Number	Lift Setting*
RV-1039	2580 psia $\pm$ 3%
RV-1040	2540 psia $\pm$ 3%
RV-1041	2500 psia $\pm$ 3%

\* After testing or valve maintenance which could affect the setting, it shall be reset to within 1% of the nominal setpoint prior to being returned to service.



3.1.7 Primary and Secondary Safety Valves (continued)

Specification

3.1.7.2 A minimum of 23 main steam safety valves shall be operable as specified in Table 3.1.7-2.

Applicability

Specification 3.1.7.2 is applicable when the plant is operating above COLD SHUTDOWN.

Action

With more than one main steam safety valve inoperable,

- a. The reactor shall be placed in HOT SHUTDOWN within 12 hours, and
- b. The reactor shall be placed in COLD SHUTDOWN within 48 hours.

Table 3.1.7-2  
Main Steam Safety Valve Lift Settings

Valve Number	Lift Setting*
RV-0701, RV-0702 RV-0703, RV-0704 RV-0705, RV-0706 RV-0707, RV-0708	1025 psig $\pm$ 3%
RV-0709, RV-0710 RV-0711, RV-0712 RV-0713, RV-0714 RV-0715, RV-0716	1005 psig $\pm$ 3%
RV-0717, RV-0718 RV-0719, RV-0720 RV-0721, RV-0722 RV-0723, RV-0724	985 psig $\pm$ 3%

\* After testing or or valve maintenance which could affect the setting, it shall be reset to within 1% of the nominal setpoint prior to being returned to service.

### 3.1.7 Primary and Secondary Safety Valves (continued)

#### Basis:

The primary and secondary safety valves provide overpressure protection for the primary coolant system and the secondary system. The setpoints and relief capacities of these safety valves limit the primary and secondary system pressures to 110% of design.

A complete loss of turbine generator load is the limiting transient for challenging the overpressure protection for the primary and secondary systems. The analysis performed to support these specifications assumed complete loss of turbine generator load, without simultaneous reactor trip on turbine trip, while operating above rated power<sup>(1)</sup>. The only pressure relieving systems assumed in the analysis were the primary and secondary safety valves. The analysis was performed with parameters and equipment operational states selected to maximize the system pressures, including a steam generator tube plugging level of 25%.

The transient analyses and the overpressurization analysis support the primary safety valve specification with the specified tolerance and lift pressure, and with expected accumulation. The overpressurization analysis also supports the specified secondary safety valve lift pressures and tolerance including an inoperable secondary safety valve in any one setpoint bank<sup>(1)(2)</sup>.

Following valve testing or reinstallation after removal for valve maintenance which could affect the valve setting, the tolerance for the safety valve lift pressure is more restrictive to allow for drift. ASME B&PV Code, 1986 edition, Section XI, subsection IWV-3500, specifies ANSI/ASME OM-1-1981 requirements which allow the specified tolerances in the lift pressures of the primary and secondary safety valves.

#### References

- (1) EMF-93-086(P)
- (2) Letter from HG Shaw (SPC) to RJ Gerling (CPCo) dated July 26, 1993.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 167 TO FACILITY OPERATING LICENSE NO. DPR-20  
CONSUMERS POWER COMPANY  
PALISADES PLANT  
DOCKET NO. 50-255

1.0 INTRODUCTION

By letter dated January 13, 1995, as supplemented April 12 and 27, 1995, the Consumers Power Company (the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-20 for the Palisades Plant. The proposed amendment would modify the required settings and allowable "as found" and "as left" tolerances for the primary and secondary safety valves. Specifically, the proposed limits would allow installed primary and secondary valve settings to be within a 3 percent tolerance of their nominal settings, but would require returning the valve settings to within 1 percent of the nominal settings if the valves are removed from the piping for maintenance or testing.

The April 12 and 27, 1995, letters provided clarifying information in response to the staff's request for additional information of April 11, 1995, and a telephone request for information on the Palisades loss of load analysis contained in the January 13, 1995, submittal. This information was within the scope of the original application and did not change the staff's initial no significant hazards consideration determination.

The licensee proposed changes to TS 3.1.7 and its associated bases. These changes are summarized below:

1. Current TS 3.1.7a requires that all three pressurizer safety valves (PSV) be operable when the reactor is critical. Proposed TS 3.1.7.1 would require that all PSVs be operable when the plant is operating above cold shutdown.
2. Current TS 3.1.7c requires that a minimum of 23 (out of 24) main steam safety valves (MSSV) be operable during power operation. Proposed TS 3.1.7.2 would require that a minimum of 23 MSSVs be operating when the plant is operating above cold shutdown.
3. Current TS 3.1.7b requires that a minimum of one operable PSV be installed whenever the head is on the reactor vessel. Proposed TS 3.1.7 would delete this requirement.

4. Current TS 3.1.7a requires that the lift settings for all three PSVs be maintained within  $\pm 1$  percent of their nominal setpoints. Proposed TS 3.1.7.1 would change the tolerance band to  $\pm 3$  percent.
5. Proposed TS 3.1.7.1 and 3.1.7.2 specify the individual setpoints and tolerance bands for all PSVs and MSSVs. Tables 3.1.7-1 and 3.1.7-2 reflect the revised tolerance band of item 4 above.
6. Current TS 3.1.7 does not contain an action statement pertaining to inoperable safety valves. In the event of an inoperable safety valve, Palisades TS 3.0.3 becomes applicable. TS 3.0.3 requires that the plant be placed in hot standby within 7 hours, hot shutdown within 13 hours, and cold shutdown within 37 hours. Proposed TS 3.1.7 adds an action statement regarding inoperable PSVs and MSSVs which requires the plant to be placed in hot shutdown within 12 hours and cold shutdown within 48 hours.
7. Proposed TS 3.1.7 (as revised in the licensee's April 27, 1995 submittal) states that "after testing or valve maintenance which could affect the setting, it shall be reset to within 1 percent of the nominal setpoint prior to being returned to service." This statement applies to PSVs and MSSVs.

## 2.0 EVALUATION

At Palisades, there are three PSVs with nominal setpoints of 2500 psia [pounds per square inch, absolute], 2540 psia, and 2580 psia, and a total of 24 MSSVs which have nominal setpoints of 985 psig [pounds per square inch, gauge], 1005 psig, and 1025 psig. The function of the PSVs and MSSVs is to provide overpressure protection for the primary and secondary systems, thus limiting the pressure to within 110 percent of the system design pressures. The licensee is proposing to revise the Palisades TS to allow a relaxation in the PSV setpoint tolerances for the as-found test condition from  $\pm 1$  percent to  $\pm 3$  percent. The current TS setpoint tolerance for the MSSVs is  $\pm 3$  percent. The licensee is also proposing to reset the PSVs and MSSVs to within 1 percent of nominal setpoints after testing or maintenance which could affect the setting. This will reduce the possibility of setpoint drift outside the allowable tolerance.

The licensee stated that the existing TS criteria for the PSV setpoint tolerance ( $\pm 1$  percent) was derived from the American Society of Mechanical Engineers (ASME) Code, Section III, NB-7524.3, which requires a tolerance of  $\pm 1$  percent for the original construction. Further, the licensee stated that throughout the history of testing of the PSVs it has been common for at least one PSV to exceed the  $\pm 1$  percent criterion. However, there have only been two occasions when the as-found setting exceeded the  $\pm 3$  percent criterion. If a safety valve is tested and found to be outside the allowable tolerance, additional valves must be tested in accordance with ASME Code, Section XI. Increasing the as-found setpoint tolerance will, therefore, reduce the frequency of requiring more than one valve to be tested during a refueling

outage. The staff agrees that the increase in the PSV setpoint tolerance to  $\pm 3$  percent is acceptable provided the licensee can demonstrate that adequate overpressure protection is provided.

In accordance with the ASME Code, the PSVs and MSSVs must be designed with sufficient relief capacity to limit the primary and secondary side pressures to less than 110 percent of their design values during the most severe design basis overpressure transient. The loss of external load event represents the most limiting transient for both the primary and secondary systems. For the proposed upper limit (+3 percent) on PSV setpoint tolerance to be deemed acceptable, it must be demonstrated that the primary and secondary system pressures remain below 2750 psia and 1100 psia, respectively, during this transient when the PSVs and MSSVs are set at 3 percent above their nominal setpoints.

The licensee has performed the requisite analysis using an approved model (ANF-RELAP) and has documented the results in its January 13, 1995, submittal. The following conservative assumptions were made in order to maximize primary and secondary system pressures during the analyzed event:

- Normally, the turbine trip which accompanies the loss of external load event causes a direct reactor trip. For the Palisades analysis, the reactor trip on turbine trip is assumed to be disabled.
- The steam dump (turbine bypass) system is assumed to be unavailable.
- A 25 percent steam generator tube plugging level is assumed.
- An initial pressurizer level which is 10 percent above the programmed level for full power operation is assumed.
- No credit is taken for relief through the pressurizer power-operated relief valves (PORVs).
- PSV and MSSV accumulation (+3 percent) is accounted for.
- Rated power conditions are assumed at event initiation.

The results of the licensee's analysis indicate that both primary and secondary system pressures remain below 110 percent of the design value during the limiting overpressure event. Therefore, the acceptance criteria are met for the proposed upper limit (+3 percent) on the PSV setpoint tolerance.

To demonstrate the acceptability of the proposed lower limit (-3 percent) on the PSV setpoint tolerance, the licensee reviewed all existing departure from nucleate boiling (DNB) analyses to determine whether the PSVs would become challenged as a result of the revised lower limit. For those events during which a significant increase in primary system pressure occurs, the peak pressurizer pressure never exceeds 2200 psia and the PSVs (with the current -1

percent setpoint tolerance) are not challenged. With the proposed -3 percent setpoint tolerance, the lowest PSV setpoint is 2425 psia and therefore, the PSVs remain unchallenged.

Proposed TS 3.1.7.1 and 3.1.7.2 include the requirement that all PSVs and at least 23 (out of a total of 24) MSSVs be operable when the plant is operating above cold shutdown. This encompasses the current requirements (TS 3.1.7a and 3.1.7c) that these valves be operable when the reactor is critical or in power operation and is therefore acceptable. Furthermore, the licensee has verified that with one inoperable MSSV in any of the three valve banks, adequate relief capacity exists to maintain secondary system pressure below 110 percent of the design value during the loss of external load event.

The proposed deletion of current TS 3.1.7b (which requires that a minimum of one operable PSV be installed whenever the head is on the reactor vessel) is acceptable because the combined range of applicability of current TS 3.1.8 and proposed TS 3.1.7.1 encompasses that of TS 3.1.7b. Current TS 3.1.8 ensures that overpressure protection is provided for the primary system during cold shutdown. This is accomplished via the pressurizer PORVs operating in the low temperature overpressure protection (LTOP) mode.

The inclusion of Tables 3.1.7-1 and 3.1.7-2 in proposed TS 3.1.7.1 and 3.1.7.2 serves to clarify the setpoint values and corresponding tolerance bands for each of the PSVs and MSSVs and therefore represents an acceptable administrative change. The licensee's April 25, 1995, letter revised the footnotes to these tables initially proposed in the January 13, 1995, submittal.

The proposed action statement added to TS 3.1.7 to address inoperable PSVs and MSSVs, when compared with existing TS 3.0.3, allows essentially the same amount of time to reach hot shutdown, but allows an additional 11 hours to reach cold shutdown. As noted above, TS 3.1.8 ensures overpressure protection for the reactor coolant system (RCS) via the LTOP system during low temperature operation. This system is automatically activated whenever the RCS temperature drops below 430°F. Therefore, during most of the transition period between hot shutdown (525°F) and cold shutdown (210°F), the PORVs and not the PSVs are the principal source of RCS overpressure protection. During this same period, the MSSVs would not be challenged because secondary pressure is well below the MSSV setpoints. (At 525°F, the saturation pressure is approximately 850 psia). Consequently, the 11-hour relaxation in the time allowed to reach cold shutdown does not have a significant impact on plant safety and is therefore acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Michigan State official was notified of the proposed issuance of the amendment. The Michigan State official had no comments.

#### 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (60 FR 11130). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

#### 5.0 CONCLUSION

The staff has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: H. Abelson and G. Hammer

Date: June 8, 1995