



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 160 TO FACILITY OPERATING LICENSE NO. DPR-20

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By letter dated April 15, 1992, as modified by letters dated December 8, 1992, June 25, 1993, and February 2, 1994, 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 incorporate the requirements of NRC Generic Letter (GL) 90-06 into the licensee's Technical Specification 3.1.8, "Power Operated Relief Valves (PORVs)," Table 3.17.4, Item 11, "PORV Isolation Valve Position Indication," and Technical Specification 4.1, "Instrumentation and Control." These requirements resulted from Generic Issue 70, "Power-Operated Relief Valve and Block Valve Reliability," and Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors." The licensee's February 2, 1994, letter provided minor editorial changes which did not affect the staff's initial proposed no significant hazards consideration determination.

1.1 Proposed Changes

To incorporate the requirements of GL 90-06, the licensee requested the following changes to its TSs:

A. TS 3.1.8 is changed as follows:

1. A new Specification 3.1.8.1, PORV requirements when the temperature of all primary coolant system (PCS) cold legs is greater than or equal to 430°F, has been added to implement the model TS of GL 90-06.
2. Existing Specification 3.1.8.1, PORV requirements when below 430°F, has been renumbered as 3.1.8.2, and revised to coordinate the Action statements with those of the model TS.
3. The Basis section for Specification 3.1.8 has been revised to discuss the newly added requirements.

B. Table 3.17.4, Item 11, PORV block valve position indication, has been changed to utilize the term "block valve" rather than "Isolation Valve" for consistency with Specification 3.1.8 and with general plant usage. The associated Permissible Bypass Condition entry has been changed to

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reference Specification 3.1.8, rather than to repeat the specific PCS vent requirement.

- C. Surveillance Requirement 4.1.1 has been revised to include additional testing in accordance with GL 90-06.

2.0 EVALUATION

Palisades does not utilize Standard Technical Specifications; therefore, the format of the proposed specifications differs from that provided in GL 90-06.

Palisades safety analyses do not assume automatic PORV operation above a temperature of 430°F, but do assume automatic, variable setpoint operation when below 430°F. Existing Palisades TSs address PORV operability only at temperatures below 430°F. However, proposed Specification 3.1.8.1 is applicable at temperatures greater than or equal to 430°F and proposed Specification 3.1.8.2 is applicable at temperatures below 430°F. This allows for surveillance at all times.

Proposed Specifications 3.1.8.1 and 3.1.8.2 stipulate requirements similar to those of GL 90-06 Specification 3.4.4 and 3.4.9.3, respectively. Proposed Specification 4.1.1 addresses the requirements of GL 90-06 Specifications 4.4.4.1, 4.4.4.2, and 4.4.9.3.

- A. The proposed Specification 3.1.8.1 differs from GL 90-06 Specification 3.4.4 for the following reasons:

1. The wording of proposed Specification 3.1.8.1 differs from that of GL 90-06 Specification 3.4.4 in order to address the required function of two operable flow paths, rather than to simply address the required components.
2. Actions of GL 90-06 were combined for one and two inoperable valves also to address the PORV function, rather than only the individual component.
3. In proposed Specification 3.1.8.1, Actions "a.1" and "b.1" place the PORV in "CLOSE" position instead of the GL 90-06 requirement of "MANUAL" position because Palisades does not have a "MANUAL" position. Placing the Palisades PORVs in the "CLOSE" position is equivalent to the GL 90-06 requirement of placing the PORV in "MANUAL" position.
4. The licensee did not adopt the GL 90-06 requirement to remove power from the block valve when the PORV is inoperable due to causes other than excessive seat leakage. This requirement is not acceptable for Palisades because if power is removed, and the PORV is then restored to operable, the block valve would have to be cycled in order to show that it is operable. Palisades' past experiences have shown that cycling block valves while at power can lead to partly cycling the PORVs which leads to momentary relief of the PCS. Therefore, maintaining power to the block valves is more practical at Palisades. The proposed Action maintains pressure control capability when the

PORV is still functional but allows power removal if it is deemed necessary.

Palisades TSs contain a PCS Leakage Limiting Condition for Operation (LCO) (LCO 3.1.5) which contains specified actions to be taken for varying amounts of PCS leakage. Although not identical, this LCO is similar to the required TS 3.4.4. Action a.

5. The wording of proposed Specification 3.1.8.1.c which states, "the reactor shall be placed in HOT SHUTDOWN within 12 hours." differs from that of GL 90-06 which says, "be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours." The difference between these statements results from the desire to provide flexibility in the rate of power decrease and to avoid violating other parts of the Palisades TS limits. The proposed wording is also consistent with the wording of the new Standard Technical Specifications.
 6. Action e of GL 90-06 Specification 3.4.4, "The provisions of Specification 3.0.4 are not applicable," was not adopted by Palisades because it is not necessary.
- B. The proposed Specification 3.1.8.2 differs from GL 90-06 Specification 3.4.9.3 for the following reasons:
1. As for proposed Specification 3.1.8.1, the wording of proposed Specification 3.1.8.2 differs from that of GL 90-06 Specification 3.4.9.3 in order to address the required function of two operable flow paths, rather than to simply address the required components.
 2. In Action a, the 57% level specified for taking credit for a bubble in the pressurizer provides a steam space of approximately 700 cubic feet out of a total pressurizer volume of 1500 cubic feet. This bubble is maintained to absorb additional coolant mass from a pump start or temperature increase. This volume is essentially the same as would be available during full power operation. The analysis is based on full power operation where the specified volume is adequate to absorb the increased PCS water volume caused by a turbine trip unaccompanied by a reactor trip (although a reactor trip is assumed to occur soon after the turbine trip due to PCS pressure increase). The creation of a pressurizer steam bubble, at Palisades, during heatup and the filling of the pressurizer on cooldown do not coincide, exactly, with mode changes nor with the entry into the conditions where low temperature overpressure protection (LTOP) is required. During heatup, the bubble is created after the PCS temperature reaches 350°F, while during cooldown, the pressurizer is filled after shutdown cooling is placed in service, below 300°F. LTOP is required when the PCS is below 430°F.

Therefore, specifying a 24-hour allowable outage time (AOT) when there is less steam space than required for full power operation and a 7-day

AOT when that steam space is available meets the intent of GL 90-06. The 57% pressurizer level provides protection comparable to that provided by the nitrogen bubble in Babcock and Wilcox facilities.

3. Proposed Specification 3.1.8.2.b refers to a path capable of relieving 167 gpm at a PCS pressure of 315 psia instead of a required, plant-specific vent area. The need for this change occurred because it was discovered that newly installed PCS manual vent valves, PC-514 and PC-515, were slightly smaller than the specified vent area of 1.3 square inches. The valves were originally thought to have an effective area of 1.33 square inches but actually had an effective area of 1.228 square inches. An analysis, included in the licensee's submittal dated June 25, 1993, has shown that the newly installed manual vent valve area was sufficient to meet Appendix G criteria.

The intent of the required area is to protect the PCS from overpressure transients which could exceed the 10 CFR Part 50, Appendix G, limits with the PORVs inoperable. The licensee's analysis concluded that manual vent valves PC-514 and PC-515 will provide a relief capacity of 167 gpm at a PCS pressure of approximately 115 psig. This is well below the minimum 331 psig limit (Appendix G curve limit for a 40°F/hr heatup rate). This relief capacity will protect the PCS against a pressure transient caused by a maximum charging/letdown imbalance coincident with a 40°F/hr PCS heatup rate and a 60°F/hr pressurizer heatup rate.

Two other potential overpressure transients, a high pressure safety injection (HPSI) pump start and a primary coolant pump (PCP) start, are precluded based on the following reasons. With the PCS in a vented and depressurized state, the PCS temperature would be below 212°F, and TS 3.3.2.g requires both HPSI pumps to be rendered inoperable below 260°F. With the system depressurized, normal operating procedures prohibit a PCP start due to insufficient pump net positive suction head (NPSH).

Therefore, the 1.3 square inch requirement can be replaced with a requirement to have a vent capable of relieving 167 gpm at a PCS pressure less than or equal to 300 psig. Specifying a flow rate at a certain pressure instead of a vent area is also consistent with the licensee's addressing of the function of the flow path instead of the required components.

4. Action e of GL 90-06 model Specification 3.4.9.3, regarding reporting requirements when PORVs or RCS [reactor coolant system] vents are used, was not adopted by Palisades because the requirement already exists as part of 10 CFR 50.73(a)(2)(iv) and 10 CFR 50.73(b).
- C. The proposed Specification 4.1.1 differs from GL 90-06 Specifications 4.4.9.3, 4.4.4.1, and 4.4.4.2 for the following reasons:
1. The format and wording of proposed Specification 4.1.1 differs from those of GL 90-06 Specifications 4.4.9.3, 4.4.4.1, and 4.4.4.2 in

order to group the different requirements according to their referenced sections. This is required because Palisades does not utilize Standard Technical Specifications.

2. Proposed Specification 4.1.1.3.(a) uses "above COLD SHUTDOWN" in place of GL 90-06's requirement of "during MODES 3 or 4." This difference exists due to Palisades TSs definitions of reactor operating conditions. Palisades TSs do not define mode numbers. Therefore, the proposed specification is acceptable.
3. Proposed Specification 4.1.1.3.(b) proposes cycling the block valves "prior to heatup from COLD SHUTDOWN, if not cycled within 92 days." instead of GL 90-06's requirement of "at least once per 92 days." The once per 92 days as suggested by GL 90-06 is inappropriate for Palisades because opening the block valves during power operation may cause the PORVs to momentarily relieve. The momentary relief of the PORV will lead to increased chance of seat leakage. Therefore, the proposed specification is acceptable.
4. Requirement 4.4.4.3 of GL 90-06 was not addressed by Palisades. This is due to the fact that Palisades does not have an emergency power supply for the PORVs and block valves.

All other specifications are effectively the same as those of GL 90-06.

The NRC staff has reviewed the licensee's submittal and concludes that it meets the requirements of GL 90-06 and is therefore acceptable. Based on the above, the staff has determined that an amendment should be granted.

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 requirements with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 (59 FR 4937). 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.

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