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

Document Control

February 11, 1991

Docket No. 50-255

Mr. Gerald B. Slade
Plant General Manager
Palisades Plant
27780 Blue Star Memorial Highway
Covert, Michigan 49043

Dear Mr. Slade:

SUBJECT: AMENDMENT NO. 135 TO PROVISIONAL OPERATING LICENSE NO. DPR-20: (TAC NOS. 77564, 77752 AND 77850)

The Commission has issued the enclosed Amendment No. 135 to Provisional Operating License No. DPR-20 for the Palisades Plant. This amendment consists of changes to the Technical Specifications in response to your application dated August 21, 1990 (change 1), September 20, 1990, and as amended on November 20, 1990 (change 2), and October 4, 1990 (change 3).

This amendment would:

(1) replace the specific requirements of Palisades Plant Technical Specification (TS) 4.5.1, Integrated Leakage Rate Tests (ILRT), with a general statement that the ILRT will meet the requirements of 10 CFR 50, Appendix J, type A test or approved exemptions. Also proposed is a change to TS 4.5, Containment Tests, basis to reflect that the signal to close the containment isolation valves for the component cooling lines has been changed from a safety injection signal to a containment high pressure signal;

(2) modify TS Table 3.6.1, Containment Penetrations and Valves, to reflect physical changes effected to the steam generator bottom and surface blowdown lines during the 1990 refueling outage; and,

(3) modify TS 5.3.1a, Primary Coolant System, to remove specific references to ASME codes and addenda that currently exist; and instead, to reference the Primary Coolant System (PCS) description contained in the Final Safety Analysis Report (FSAR) Section 4.2, Design Basis.

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,

Brian Holian, Project Manager
Project Directorate III-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 135 to License No. DPR-20
2. Safety Evaluation

cc w/enclosures:
See next page

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,

/s/

Brian Holian, Project Manager
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 135
License No. DPR-20

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Consumers Power Company (the licensee) dated August 21, 1990 (change 1), September 20, 1990, and as amended on November 20, 1990 (change 2), and October 4, 1990 (change 3) 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:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 135 , 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 its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A.S. Masciantonio (for)

L. B. Marsh, Director
Project Directorate III-1
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 11, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 135

PROVISIONAL 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 the amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
3-40b	3-40b
3-40e	3-40e
4-25	4-25
4-26	4-26
4-27	4-27
4-33	4-33
4-34	4-34
5-2	5-2

TABLE 3.6.1
CONTAINMENT PENETRATIONS AND VALVES

PEN NUMBER	SYSTEM NAME AND SERVICE LINE SIZE	VALVE ID NO	REMARKS
1A	PURGE AIR EXHAUST (8")	CV-1805 CV-1806	Auto isolation valve; required closure time = 25 seconds
1C	PURGE AIR EXHAUST (8")	CV-1807 CV-1808	Auto isolation valve; required closure time = 25 seconds
5	S/G (E-50A) BLOWDOWN (4")*	CV-0767 CV-0771	Auto isolation valve; required closure time = 25 seconds
6	S/G (E-50B) BLOWDOWN (4")*	CV-0768 CV-0770	Auto isolation valve; required closure time = 25 seconds
11	CONDENSATE TO SHIELD COOLING SURGE TANK (1 ½")	CV-0939 CK-CD401	Auto isolation valve; required closure time = 25 seconds
14	COMPONENT COOLING WATER IN (10")	CV-0910 CK-CC0910	Auto isolation valve; required closure time = 25 seconds
15	COMPONENT COOLING WATER OUT (10")	CV-0911 CV-0940	Auto isolation valve; required closure time = 25 seconds
16	S/G (E-50A) RECIRCULATION (4")*	CV-0739	Auto isolation valve; required closure time = 25 seconds

* Penetration line size; isolation valves are 2-inch.

TABLE 3.6.1
CONTAINMENT PENETRATIONS AND VALVES

PEN NUMBER	SYSTEM NAME AND SERVICE LINE SIZE	VALVE ID NO	REMARKS
47	PRIMARY SYSTEM DRAIN TANK PUMP SUCTION (4")	CV-1002 CV-1007	Auto isolation valve; required closure time = 25 seconds
49	CLEAN WASTE RECEIVER TANK CIRCULATION PUMP SUCTION (3")	CV-1038 CV-1036	Auto isolation valve; required closure time = 25 seconds
52	CONTAINMENT SUMP DRAIN TO DIRTY WASTE TANK (4")	CV-1103 CV-1104	Auto isolation valve; required closure time = 25 seconds
55	S/G (E-50B) RECIRCULATION (4")*	CV-0738	Auto isolation valve; required closure time = 25 seconds
67	CLEAN WASTE RECEIVER TANK PUMP RECIRC (3")	CV-1037 CK-CRW408	Auto isolation valve; required closure time = 25 seconds
68	AIR SUPPLY TO AIR ROOM (12")	CV-1813 CV-1814	Auto isolation valve; required closure time = 25 seconds
69	CLEAN WASTE RECEIVER TANK PUMP SUCTION (4")	CV-1045 CV-1044	Auto isolation valve; required closure time = 25 seconds

* Penetration line size; isolation valves are 2-inch.

4.5 CONTAINMENT TESTS

Applicability

Applies to containment leakage and structural integrity.

Objective

To verify that potential leakage from the containment and the prestressing tendon loads are maintained within specified values.

Specifications

4.5.1 Integrated Leakage Rate Tests

A surveillance test program for the containment overall integrated leakage rate shall meet the 10 CFR 50, Appendix J, Type A test requirements or approved exemptions.

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Amendment No. 12
Change No. 16
February 11, 1975
Amendment No. 135

4.5.2 Local Leak Detection Tests

a. Test

(1) Local leak rate tests shall be performed at a pressure of not less than 55 psig.

(2) Local leak rate tests for checking air lock door seals within 72 hours of each door opening shall be performed at a pressure of not less than 10 psig.

(3) Acceptable methods of testing are halogen gas detection, soap bubble, pressure decay, or equivalent.

(4) The local leak rate shall be measured for each of the following components:

(a) Containment penetrations that employ resilient seal gaskets, sealant compounds, or bellows.

(b) Air lock and equipment door seals.

(c) Fuel transfer tube.

(d) Isolation valves on the testable fluid systems' lines penetrating the containment.

(e) Other containment components which require leak repair in order to meet the acceptance criterion for any integrated leak rate test.

b. Acceptance Criteria

(1) The total leakage from all penetrations and isolation valves shall not exceed 0.60 La.

(2) The leakage for an air lock door seal test shall not exceed 0.023 La.

c. Corrective Action

(1) If at any time it is determined that 0.60 La is exceeded, repairs shall be initiated immediately.

4.5 CONTAINMENT TESTS (Cont'd)

Basis

The containment is designed for an accident pressure of 55 psig.[1] While the reactor is operating, the internal environment of the containment will be air at approximately atmospheric pressure and a temperature of about 104°F. With these initial conditions, following a LOCA, the temperature of the steam-air mixture at the peak accident pressure of 55 psig is 283°F.

Prior to initial operation, the containment was strength-tested at 63 psig and then leak rate tested. The design objective of this preoperational leak rate test was established as 0.1% by weight per 24 hours at 55 psig. This leakage rate is consistent with the construction of the containment,[2] which is equipped with independent leak-testable penetrations and contains channels over all unaccessible containment liner welds, which were independently leak-tested during construction.

Accident analyses have been performed on the basis of a leakage rate of 0.1% by weight per 24 hours. With this leakage rate and with a reactor power level of 2530 MWt, the potential public exposure would be below 10 CFR 100 guideline values in the event of the Maximum Hypothetical Accident.[3]

The performance of a periodic integrated leak rate test during plant life provides a current assessment of potential leakage from the containment in case of an accident that would pressurize the interior of the containment. In order to provide a realistic appraisal of the integrity of the containment under accident conditions, this periodic leak rate test is to be performed without preliminary leak detection surveys or leak repairs and containment isolation valves are to be closed in the normal manner.

This normal manner is a coincident two-of-four high radiation or two-of-four high containment pressure signals which will close all containment isolation valves not required for engineered safety features except the component cooling lines' valves which are closed by CHP only. The control system is designed on a two-channel (right and left) concept with redundancy and physical separation. Each channel is capable of initiating containment isolation.[4]

4.5 CONTAINMENT TESTS (Cont'd)

The Type A test reouirements including pretest test methods, test pressure, acceptance criteria, and reporting reouirements are in accordance with 10 CFR 50, Appendix J, reouirements or approved exemptions.

The freouency of the periodic integrated leak rate test is keyed to the refueling schedule for the reactor because these tests can best be performed during refueling shutdowns. The specified freouency is as specified in 10 CFR Part 50, Appendix J which is based on three major considerations. First is the low probability of leaks in the liner because of (a) the test of the leak tightness of the welds during erection; (b) conformance of the complete containment to a low leak rate at 55 psig during preoperational testing which is consistent with 0.1% leakage at design basis accident (DBA) conditions: and (c) absence of any significant stresses in the liner during reactor operation. Second is the more freouent testing, at the full accident pressure, of those portions of the containment envelope that are most likely to develop leaks during reactor operation (penetrations and isolation valves) and the low value ($0.60L_a$) of the total leakage that is specified as acceptable from penetrations and isolation valves. Third is the tendon stress surveillance program which provides assurance that

5.2 CONTAINMENT DESIGN FEATURES (Cont'd)

5.2.2 Penetrations

a. All penetrations through the steel-lined concrete structure for electrical conductors, pipe, ducts, air locks and doors are of the double-barrier design.

b. The automatically actuated containment isolation valves are designed to close upon high radiation or high pressure in the containment structure. No single component failure in the actuation system will prevent the isolation valves from functioning as designed.

5.2.3 Containment Structure Cooling Systems

a. The containment air cooling system includes four separate self-contained units which cool the containment air during normal operation and limit the pressure rise in the event of a design accident. Three units, each with a cooling water flow of 4875 gpm with an inlet temperature of 75°F, will remove 229 x 10^6 Btu/hr of heat.

b. The containment spray system is capable of removing 233 x 10^6 Btu/hr (two pumps) from the containment atmosphere at 283°F by spraying the water from the 270,000-gallon SIRW tank. Recirculation of spray water from the containment sump through heat exchangers into the containment atmosphere is also provided. Under this mode of operation, the heat removal capability is 167 x 10^6 Btu/hr based upon 4000 gpm of component cooling water flow with 114°F inlet temperature through the heat exchanger and 1420 gpm of spray water flow at 283°F inlet temperature.

5.3 NUCLEAR STEAM SUPPLY SYSTEM (NSSS)

5.3.1 Primary Coolant System Design Pressure and Temperature

The primary coolant system is designed, and shall be maintained:

a. In accordance with the Code requirements specified in Section 4.2 of the FSAR with allowance for normal degradation pursuant to the surveillance requirements,

b. For a pressure of 2500 psia,

c. For a temperature of 650°F, except the pressurizer, which shall be 700°F, and

d. With a volume of approximately 10,900 cubic feet.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 135 TO PROVISIONAL OPERATING LICENSE NO. DPR-20

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By letters dated August 21, 1990 (change 1), September 20, 1990, and as amended on November 20, 1990 (change 2), and October 4, 1990 (change 3), Consumers Power Company (the licensee) requested an amendment to the Technical Specifications (TSs) appended to Provisional Operating License No. DPR-20 for the Palisades Plant. The proposed amendments would:

(1) replace the specific requirements of Palisades Plant Technical Specification (TS) 4.5.1, Integrated Leakage Rate Tests (ILRT), with a general statement that the ILRT will meet the requirements of 10 CFR 50, Appendix J, type A test or approved exemptions. Also proposed is a change to TS 4.5, Containment Tests, basis to reflect that the signal to close the containment isolation valves for the component cooling lines has been changed from a safety injection signal to a containment high pressure signal;

(2) modify TS Table 3.6.1, Containment Penetrations and Valves, to reflect physical changes effected to the steam generator bottom and surface blowdown lines during the 1990 refueling outage; and,

(3) modify TS 5.3.1a, Primary Coolant System, to remove specific references to ASME codes and addenda that currently exist; and instead, to reference the Primary Coolant System (PCS) description contained in the Final Safety Analysis Report (FSAR) Section 4.2, Design Basis.

2.0 EVALUATION

Change No. 1

On September 15, 1990, Palisades Plant entered an outage to effect routine repairs and to perform a replacement of its steam generators. The size of the steam generators precluded their removal through the normal containment egress point, necessitating that the primary containment be breached. Subsequent to the steam generators' removal and replacement, the containment integrity was restored.

Consumers Power Company requested, in a letter dated August 21, 1990, an amendment to the Palisades Plant Technical Specification 4.5.1, Integrated Leakage Rate Tests (ILRT), and its basis, in order to perform a containment full peak internal pressure ILRT following the steam generator replacement and restoration of containment integrity.

As presently written, TS 4.5.1 requires an ILRT to be performed prior to initial plant operations at containment design pressure (P_a) of 55 psig with all subsequent leak rate tests to be performed at a test pressure of about 28 psig ($0.5P_a$). Since this is not an initial test, TS 4.5.1 would not allow an ILRT at containment design pressure.

By contrast, the requirements of 10 CFR 50, Appendix J, Type A test, paragraph III.A.4, preoperational leakage rate tests, requires either:

(1) a half-pressure ($P_t = 0.5P_a$) test verified by a full peak internal pressure (P_a) test with leakage not to exceed $0.75L_t$ (maximum allowable leakage rate at pressure P_t), or

(2) a single full pressure test with leakage not to exceed $0.75L_a$ (maximum allowable leakage rate at pressure P_a).

In either case (1) or (2), the containment test(s) would be more conservative using the requirements of 10 CFR 50, Appendix J, instead of the as-written requirements presently in effect in the Palisades Plant Technical Specifications, since those TSs do not allow for a full pressure ILRT. Therefore, this change is considered acceptable.

The replacement of the present TS 4.5.1 would also delete subsection 4.5.1e, Report of Test Results, which requires a summary report of the leak test of the recirculation heat removal (RHR) systems to the staff. This report of the successful completion of the test is not required by the staff. The staff can review test results of this nature during normal inspections. The failure of the RHR leak test would warrant reporting in accordance with 10 CFR 50.73; therefore, this change is considered acceptable.

An additional change included in this amendment request involved a correction to TS 4.5, Containment Tests, basis. The containment isolation valves for the component cooling lines are closed by a containment high pressure (CHP) signal, not a safety injection signal (SIS). This reflects a physical change to the system which occurred in 1986. This change is considered editorial in nature since the modification was performed under 10 CFR 50.59. The change updates the TS to reflect an as-is plant condition; and, is therefore considered acceptable.

<u>Change No. 2</u>

The licensee proposed to change Technical Specification Table 3.6.1, Containment Penetrations and Valves, in two respects:

A) For Penetrations No. 5 and 6, change the system name and service line size from "...BOTTOM BLOWDOWN (2")" to "...BLOWDOWN (4") *", and add footnote "* penetration line size; isolation valves are 2-inch.".

B) For Penetrations 16 and 55, change the system name and service line size from "...SURFACE BLOWDOWN (2") to "...RECIRCULATION (4") *", and add footnote "* penetration line size; isolation valves are 2-inch.".

The proposed TS changes are requested due to modifications made to the steam generators blowdown lines during the 1990 refueling outage under Consumers Power Company approved facility changes and 10 CFR 50.59 safety evaluations.

The existing steam generator bottom blowdown 2-inch piping from the steam generators up to the containment isolation valves, outside containment, is being replaced with 4-inch piping. The existing steam generator surface blowdown 2-inch piping from the steam generators up to the containment isolation valves, outside containment, is also being replaced with 4-inch piping.

The steam generator's surface blowdown function will no longer be used. The blowdown line will only be used for recirculation during cold shutdown, hence the changes in the line name to steam generator recirculation system. Since the "bottom" blowdown lines will serve as the only steam generator blowdown lines, the "bottom" designation has been removed.

As noted above, the containment isolation valves will remain at their current 2-inch size. The modifications being performed during the 1990 refueling outage are the initial changes planned to increase the capacity of both the steam generator blowdown and recirculation capabilities. The modifications to these lines extending from the containment isolation valves, outside containment, are presently planned to be made at a future outage.

The changes involved are editorial in nature, affecting only the system name and line size designations in the containment penetration and valve table. System flow will be controlled by the existing 2" containment isolation valves. Any future change to the steam generator blowdown/containment isolation valves will be submitted to the staff for review prior to implementing new flow rates. As such, these changes are considered acceptable.

Change No. 3

The licensee proposed to change TS 5.3.1a, Primary Coolant System, by replacing the as-written requirements for the design and construction of the primary coolant system with requirements to maintain the system in accordance with Section 4.2 of the FSAR.

Technical Specification 5.3.1 currently states that the primary coolant system (PCS) shall be designed and constructed in accordance with the ASME Boiler and Pressure Vessel Code, Section III, including all addenda through the Winter of 1965, and the ASA Code for Pressure Piping, B3.1. Under this proposed change, which is in accordance with the Standard Technical Specifications, TS 5.3.1 will stipulate that the PCS is designed and shall be maintained in accordance with the Code requirements specified in Section 4.2 of the FSAR.

Section 4.2 of the FSAR shall also be modified at the time of this amendment to add the following sentence to the end of the first paragraph:

"Replacement parts and components will satisfy the requirements of the original Plant construction code in a manner that is consistent with 10 CFR 50.55a, and the rules and requirements specified in ASME B&PV Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", Article IWA-7000."

While 10 CFR 50.55a specifies a more recent revision of AMSE Boiler and Pressure Vessel Code, Section III, it is the intent of this change that any replacement parts and components will be held to standards no less restrictive than those used in the original construction of the Palisades Plant.

Also, since the FSAR is referenced in the Technical Specifications, any changes to the referenced FSAR section shall require a formal amendment requires instead of only a 10 CFR 50.59 review. As such, these changes are considered acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in 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 and a change in a surveillance requirement. 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 this amendment involves no significant hazards consideration and there has been no public comment on such findings. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 this amendment.

4.0 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. E. Carpenter, Jr.

Date: February 11, 1991