

April 4, 1985

Docket No. 50-305

Mr. D. C. Hintz
Manager - Nuclear Power
Wisconsin Public Service Corporation
Post Office Box 19002
Green Bay, Wisconsin 54307-9002

Dear Mr. Hintz:

The Commission has issued the enclosed Amendment No. 61 to Facility Operating License No. DPR-43 for the Kewaunee Nuclear Power Plant. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated February 7, 1985. This closes out our TAC number 56856.

The amendment permits testing of the main steam system while the plant is in hot shutdown conditions.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular monthly Federal Register notice.

Sincerely,

/s/MFairtile

Morton B. Fairtile, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:

1. Amendment No. 61 to DPR-43
2. Safety Evaluation

cc: w/enclosures
See next page

TSRG:DL *DAB*
EButcher *for*
2/16/85

ORB#1:DL *CP*
CParrish
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ORB#1:DL *MBZ*
MFairtile;ps
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*Do not close
until the Safety
Notice is filed
and the
288 comments.*

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Mr. D. C. Hintz
Wisconsin Public Service Corporation

Kewaunee Nuclear Power Plant

cc: Steven E. Keane, Esquire
Foley and Lardner
777 East Wisconsin Avenue
Milwaukee, Wisconsin 53202

Stanley LaCrosse, Chairman
Town of Carlton
Route 1
Kewaunee, Wisconsin 54216

Mr. Donald L. Quistroff, Chairman
Kewaunee County Board
Kewaunee County Courthouse
Kewaunee, Wisconsin 54216

Chairman
Public Service Commission of Wisconsin
Hill Farms State Office Building
Madison, Wisconsin 53702

Attorney General
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Madison, Wisconsin 53702

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
Route #1, Box 999
Kewaunee, Wisconsin 54216

James G. Keppler
Regional Administrator - Region III
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Chief Engineer
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

WISCONSIN PUBLIC SERVICE CORPORATION
WISCONSIN POWER AND LIGHT COMPANY
MADISON GAS AND ELECTRIC COMPANY

DOCKET NO. 50-305

KEWAUNEE NUCLEAR PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 61
License No. DPR-43

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Wisconsin Public Service Corporation, Wisconsin Power and Light Company, and Madison Gas and Electric Company (the licensee) dated February 7, 1985, 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 2.C.(2) of Facility Operating License No. DPR-43 is hereby amended to read as follows:


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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 61, 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


Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 4, 1985

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. DPR-43

DOCKET NO. 50-305

Revise Appendix A as follows:

Remove Pages

3.4-1

3.4-2

3.4-3

Insert Pages

3.4-1

3.4-2

3.4-3

3.4 STEAM AND POWER CONVERSION SYSTEM

Applicability

Applies to the operating status of the Steam and Power Conversion System.

Objective

To assure minimum conditions of steam-relieving capacity and auxiliary feedwater supply necessary to assure the capability of removing decay heat from the reactor, and to limit the concentrations of water activity that might be released by steam relief to the atmosphere.

Specification

- a. The reactor shall not be heated above 350°F unless the following conditions are satisfied.
 1. Five main steam safety valves per operable steam generator are operable, except during required surveillance tests or during inservice testing of these valves and steam generators in accordance with 10 CFR 50.55a, provided that at least two main steam safety valves associated with the steam generator under test are operable.
 2. Three auxiliary feedwater pumps are operable.
 3. System piping and valves directly associated with the above components are operable.
 4. A minimum of 30,000 gallons of water is available in the condensate storage tanks and the Service Water System is capable of delivering an unlimited supply from Lake Michigan.
 5. The iodine-131 activity on the secondary side of the steam generators does not exceed 1.0 uCi/cc.
- b. If, when the reactor is above 350°F, any of the conditions of Specification 3.4.a cannot be met within 48 hours, and except for the conditions of 3.4.c, the reactor shall be shutdown and cooled below 350°F using normal operating procedures.

Basis

A reactor shutdown from power requires removal of core decay heat. Decay heat removal requirements are normally satisfied by the steam bypass to the condenser and by continued feedwater flow to the steam generators. Normal feedwater flow to the steam generators is provided by operation of the turbine-cycle feedwater system.

The ten main steam safety valves (five per steam generator) have a total combined rated capability of 7,765,000 lbs/hr. The maximum full-power steam flow is 7,449,000 lbs/hr; therefore, the main steam safety valves will be able to relieve the total maximum steam flow if necessary. Below 10% power, only one steam generator is required to be operable. The requirement that five main steam safety valves per operable steam generator are available will assure sufficient steam relief capability during this mode of operation.

Testing of the main steam system while the plant is in hot shutdown conditions is permitted provided that at least two main steam safety valves associated with the steam generator under test are available to provide sufficient relief capacity to protect the system during the test.

In the unlikely event of complete loss of electrical power to the plant, continued capability of decay heat removal would be assured by the availability of either the steam-driven auxiliary feedwater pump or one of the two motor-driven auxiliary feedwater pumps, and by steam discharge to the atmosphere through the main steam safety valves. Each motor-driven pump is normally aligned with one steam generator: the discharge of the turbine-driven pump, which starts automatically, is manually valved as necessary to backup either or both motor-driven pumps, or to replace the standby function of either motor-driven pump when it is out of service. Any single auxiliary feedwater pump can supply sufficient feedwater for removal of decay heat from the reactor.

The specified minimum water supply in the condensate storage tanks is sufficient for ninety minutes of hot shutdown plus a suitable margin to prevent loss of net positive suction head prior to switching suction to the service water system. Unlimited replenishment of the condensate storage supply is available from Lake Michigan through the Service Water System.

The secondary coolant activity is based on a postulated release of the contents of one steam generator to the atmosphere. This could happen, for example, as a result of a steam break accident combined with failure of a steam line isolation valve. The limiting dose for this case results from iodine-131 because of its low MPC, and because its long half-life relative to the other iodine isotopes results in its greater concentration in the liquid. The accident is assumed to occur at zero load when the steam generators contain maximum water. With allowance for plate-out retention in water droplets, one-tenth of the contained iodine is assumed released from the plant. The maximum inhalation dose at the site boundary is then as follows:

$$\text{Dose (rem)} = \frac{C \cdot V}{10} \cdot B(t) \cdot \chi/Q \cdot \text{DCF}$$

where: C = secondary coolant activity, 1.0 $\mu\text{Ci/cc}$

V = water volume in one steam generator,
 $3510 \text{ ft}^3 = 99 \text{ m}^3$

B(t) = breathing rate, $3.47 \times 10^{-4} \text{ m}^3/\text{sec}$

$\chi/Q = 2.9 \times 10^{-4} \text{ sec/m}^3$

DCF = $1.48 \times 10^6 \text{ rem/Ci iodine-131 inhaled}$

The resultant dose is less than 1.5 rem.

References:

FSAR Section 10

FSAR Section 14.1



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. DPR-43

WISCONSIN PUBLIC SERVICE CORPORATION

WISCONSIN POWER AND LIGHT COMPANY

MADISON GAS AND ELECTRIC COMPANY

KEWAUNEE NUCLEAR POWER PLANT

DOCKET NO. 50-305

Introduction

By letter dated February 7, 1985, the Wisconsin Public Service Corporation (WPSC or the licensee) submitted a proposed license amendment for Facility Operating License No. DPR-43 for the Kewaunee Nuclear Power Plant (the facility). The proposed amendment described a change to the facility Technical Specifications (TS). The change would permit testing of the main steam system while the plant is in hot shutdown conditions.

Background

The Kewaunee plant was shut down on February 8, 1985 for the Cycle XI reload. Restart is scheduled during mid-April 1985. During this shutdown interval the licensee plans to conduct the ten-year inservice inspection hydrostatic test of the two steam generators and inservice testing of the main steam safety valves as required by NRC regulations.

Evaluation

The change would permit the licensee to perform the above tests while the plant is in hot shutdown conditions, which in turn would permit the tests to be performed with steam rather than water. The significance of this is discussed below. The portion of main steam line piping between the steam generators and the isolation valves was not intended for a water filled environment. Subsequent analysis has shown that the existing piping support design is capable of withstanding the additional loading associated with the postulated water fill event. However, any unnecessary challenging of the system under water fill conditions is not justified. In addition, the operability of the control valves, relief valves, and the main steam isolation valves is questionable under water solid conditions. This could damage valves and give inaccurate results.

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Furthermore, there is a possibility of residual water in the system after the test is complete. This could result in costly and undesirable turbine blade pitting. To prevent these problems WPSC submitted an alternate test method to the Commission. This method has been approved by our letter dated January 22, 1985 and requires the plant to be maintained in a hot shutdown condition during the tests. It also requires that the two lowest set safety valves per steam generator be gagged. The gagging of these four valves would violate present facility TS; thus, current TS would require a test with water. Therefore, the licensee submitted this TS change request to resolve this contradiction.

The change involves TS 3.4.a.1 which currently states that five main steam safety valves per operable steam generator are available whenever the reactor is above 350°F. This current TS effectively prohibits testing of the valves or steam generators with steam. The requested change permits the reactor to be heated above 350°F and in addition permits specified tests and surveillances, if at least two main steam safety valves associated with the steam generator under test are operable. The specified tests and surveillance are to be performed in accordance with 10 CFR 50.55a. The revised TS will permit testing with steam.

Kewaunee is a two-loop plant, designed by Westinghouse, similar in design to five other operating plants, Ginna, Point Beach Units 1 and 2 and Prairie Island Units 1 and 2. All five of these plants currently have TS similar to the change requested by WPSC.

We conclude the change to TS 3.4.a.1 will permit the facility to conduct tests and surveillances required by our Regulation, 10 CFR 50.55a, and endorsed by our letter of January 22, 1985, which in turn will ensure continued integrity of the main steam system and is therefore acceptable.

Environmental Consideration

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

Conclusion

We have 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, and (2) 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 4, 1985

Principal Contributor:

Morton B. Fairtile