

February 11, 1991

Docket Nos. 50-282
and 50-306

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Mr. T. M. Parker, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Dear Mr. Parker:

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT NOS. 1 AND 2 -
AMENDMENT NOS. 93 AND 86 TO FACILITY OPERATING LICENSE NOS.
DPR-42 AND DPR-60 (TAC NOS. 77500 AND 77501)

The Commission has issued the enclosed Amendment No. 93 to Facility Operating License No. DPR-42 and Amendment No. 86 to the Facility Operating License No. DPR-60 for the Prairie Island Nuclear Generating Plant, Unit Nos. 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated September 13, 1990.

The amendments revise the Technical Specifications by adding a reference to the administrative section (6.7.A.6.b) of the Technical Specifications. The reference added is WCAP-10924-P-A, Volume 1, Addendum 4, "Westinghouse Large-Break LOCA Best-Estimate Methodology," August 1990.

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

Sincerely,

/s/

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

Enclosures:

1. Amendment No. 93 to License No. DPR-42
2. Amendment No. 86 to License No. DPR-60
3. Safety Evaluation

cc w/enclosures:
See next page

LA/PD31:DRP345
PSHUTTLEWORTH
2/11/91

PM/PD31:DRP345
AMASCIANTONIO
2/11/91 *asm*

D/PD31:DRP345
LMARSH
2/11/91 *asm (for)*

CP [Signature]

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PDR ADOCK 05000282
P PDR

PRAIRIE ISLAND TAC 77500/77501

DFol
11

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

February 11, 1991

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and 50-306

Mr. T. M. Parker, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall
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The amendments revise the Technical Specifications by adding a reference to the administrative section (6.7.A.6.b) of the Technical Specifications. The reference added is WCAP-10924-P-A, Volume 1, Addendum 4, "Westinghouse Large-Break LOCA Best-Estimate Methodology," August 1990.

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

Sincerely,

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

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

Enclosures:

1. Amendment No. 93 to License No. DPR-42
2. Amendment No. 86 to License No. DPR-60
3. Safety Evaluation

cc w/enclosures:
See next page

Mr. T. M. Parker
Northern States Power Company

Prairie Island Nuclear Generating
Plant

cc:

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Mr. William Miller, Auditor
Goodhue County Courthouse
Red Wing, Minnesota 55066



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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 93
License No. DPR-42

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (the licensee) dated September 13, 1990, 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, the paragraph 2.C.(2) of Facility Operating License No. DPR-42 is hereby amended to read as follows:

9102210082 910211
PDR ADOCK 05000282
P PDR

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 93, 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

L. B. Marsh (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. 93

FACILITY OPERATING LICENSE NO. DPR-42

DOCKET NO. 50-282

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 marginal lines indicating the area of change.

REMOVE

TS - ix
TS.6.7 - 4
TS.6.7 - 5
TS.6.7 - 6

INSERT

TS - ix
TS.6.7 - 4
TS.6.7 - 5
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	b. Report of Safety and Relief Valve Failures and Challenges	TS.6.7-1
	c. Primary Coolant Iodine Spike Report	TS.6.7-1
	2. Startup Report	TS.6.7-2
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	4. Semiannual Radioactive Effluent Release Report	TS.6.7-3
	5. Annual Summaries of Meteorological Data	TS.6.7-4
	6. Core Operating Limits Report	TS.6.7-4
	B. Reportable Events	TS.6.7-5
	C. Environmental Reports	TS.6.7-6
	1. Annual Radiation Environmental Monitoring Reports	TS.6.7-6
	2. Environmental Special Reports	TS.6.7-6
	3. Other Environmental Reports (non-radiological, non-aquatic)	TS.6.7-7
	D. Special Reports	TS.6.7-7

6.7.A.5. Annual Summaries of Meteorological Data

An annual summary of meteorological data shall be submitted for the previous calendar year in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability at the request of the Commission.

6.7.A.6. Core Operating Limits Report

a. Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle or any remaining part of a reload cycle for the following:

1. Heat Flux Hot Channel Factor Limit (F_Q^{RPT}), Nuclear Enthalpy

Rise Hot Channel Factor Limit ($F_{\Delta H}^{RTP}$), PFDH, K(Z) and V(Z)
(Specifications 3.10.B.1, 3.10.B.2 and 3.10.B.3)

2. Axial Flux Difference Limits and Target Band
(Specifications 3.10.B.4 through 3.10.B.9)

3. Shutdown and Control Bank Insertion Limits
(Specification 3.10.D)

4. Reactor Coolant System Flow Limit
(Specification 3.10.J)

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

NSPNAD-8101-A, "Qualification of Reactor Physics Methods for Application to PI Units" (latest approved version)

NSPNAD-8102-A, "Prairie Island Nuclear Power Plant Reload Safety Evaluation Methods for Application to PI Units" (latest approved version)

WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology", July, 1985

WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code", August, 1985

WCAP-10924-P-A, "Westinghouse Large-Break LOCA Best-Estimate Methodology", December, 1988

WCAP-10924-P-A, Volume 1, Addendum 4, "Westinghouse Large Break LOCA Best Estimate Methodology", August 1990

XN-NF-77-57 (A), XN-NF-77-57, Supplement 1 (A), "Exxon Nuclear Power Distribution Control for Pressurized Water Reactors Phase II", May, 1981

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.
- d. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be supplied upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

B. REPORTABLE EVENTS

The following actions shall be taken for REPORTABLE EVENTS:

- a. The Commission shall be notified by a report submitted pursuant to the requirements of Section 50.73 to 10 CFR Part 50, and
- b. Each REPORTABLE EVENT shall be reviewed by the Operations Committee and the results of this review shall be submitted to the Safety Audit Committee and the Vice President Nuclear Generation.

C. Environmental Reports

The reports listed below shall be submitted to the Administrator of the appropriate Regional NRC Office or his designate:

1. Annual Radiation Environmental Monitoring Report

- (a) Annual Radiation Environmental Monitoring Reports covering the operation of the program during the previous calendar year shall be submitted prior to May 1 of each year.
- (b) The Annual Radiation Environmental Monitoring Reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by Specification 4.10.B.1. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.
- (c) The Annual Radiation Environmental Monitoring Reports shall include summarized and tabulated results in the format of Regulatory Guide 4.8, December 1975 of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.
- (d) The reports shall also include the following: a summary description of the radiological environmental monitoring program; a map of all sampling locations keyed to a table giving distances and directions from one reactor; and the results of licensees participation in the Interlaboratory Comparison Program, required by Specification 4.10.C.1.

2. Environmental Special Reports

- (a) When radioactivity levels in samples exceed limits specified in Table 4.10-3, an Environmental Special Report shall be submitted within 30 days from the end of the affected calendar quarter. For certain cases involving long analysis time, determination of quarterly averages may extend beyond the 30 day period. In these cases the potential for exceeding the quarterly limits will be reported within the 30 day period to be followed by the Environmental Special Report as soon as practicable.

3. Other Environmental Reports (non-radiological, non-aquatic)

Written reports for the following items shall be submitted to the appropriate NRC Regional Administrator:

- a. Environmental events that indicate or could result in a significant environmental impact casually related to plant operation. The following are examples: excessive bird impaction; onsite plant or animal disease outbreaks; unusual mortality of any species protected by the Endangered Species Act of 1973; or increase in nuisance organisms or conditions. This report shall be submitted within 30 days of the event and shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and plant operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified and their preliminary responses.
- b. Proposed changes, test or experiments which may result in a significant increase in any adverse environmental impact which was not previously reviewed or evaluated in the Final Environmental Statement or supplements thereto. This report shall include an evaluation of the environmental impact of the proposed activity and shall be submitted 30 days prior to implementing the proposed change, test or experiment.

D. Special Reports

Unless otherwise indicated, special reports required by the Technical Specifications shall be submitted to the appropriate NRC Regional Administrator within the time period specified for each report.



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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-306

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 86
License No. DPR-60

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northern States Power Company (the licensee) dated September 13, 1990, 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-60 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 86, 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

L. B. Marsh (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. 86

FACILITY OPERATING LICENSE NO. DPR-60

DOCKET NO. 50-306

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 marginal lines indicating the area of change.

REMOVE

TS - ix
TS.6.7 - 4
TS.6.7 - 5
TS.6.7 - 6

INSERT

TS - ix
TS.6.7 - 4
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2. Axial Flux Difference Limits and Target Band
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B. REPORTABLE EVENTS

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- a. The Commission shall be notified by a report submitted pursuant to the requirements of Section 50.73 to 10 CFR Part 50, and
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO TOPICAL REPORT WCAP-10924-P, VOLUME 1,

ADDENDUM 4, REVISION 1 (AUGUST 1990),

"WESTINGHOUSE LARGE BREAK LOCA BEST ESTIMATE METHODOLOGY:

MODEL DESCRIPTION AND VALIDATION, MODEL REVISION"

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND UNITS 1 AND 2

DOCKET NOS. 50-282 AND 50-306

1.0 INTRODUCTION

On September 13, 1990, Northern States Power Company submitted a request to amend the licenses of Prairie Island Units 1 and 2 to include reference to WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990). This topical report describes changes to the staff approved methodology (WCAP-10924-P-A) which the Prairie Island plants have been referencing for licensing basis LOCA analyses since September 1988. The revisions (August 1990) correct an error in the decay heat calculation and amend certain fuel and core calculational methods.

On February 5, 1991, the licensee submitted information supporting the applicability of WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) to Prairie Island and also provided results of the LOCA analyses performed with the revised methodology.

2.0 EVALUATION

The WCAP-10924-P-A methodology was approved on August 29, 1988, and its applicability to Prairie Island was approved on September 16, 1988. In its evaluation of the generic topical report WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) which updates the 1988 version, the staff found its methodology acceptable for referencing by Westinghouse designed 2-loop upper plenum injection (UPI) plants. A referencing requirement of the updated methodology (August 1990) is the identification of calculational changes in the application of the revised model from the previous model applications which are not included in WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990). Despite the plant specific referencing requirements, the August 1990 revision does not change the overall WCAP-10924-P-A methodology.

In its February 5, 1991, submittal the licensee identified input changes other than those addressed in the SE approving the August 1990 revision which could affect calculated peak cladding temperature (PCT). It was identified that there is some possible effect due to the decay power effects of correcting the decay

heat error. This effect was indicated to be small. We find this effect acceptably identified.

Also identified were changes in the method used to match the reference reactor system pressure drop and flow information during steady state. The method used, while different than the original method, was indicated to be consistent with the WCAP-10924-P-A methodology description and the resultant parameter values differences were indicated to be within tolerances of acceptability given in WCAP-10924-P-A. The licensee's submittal also indicated that the method for determining pressure drop and flow parameters is more accurate than that which was previously used because unrecoverable pressure losses are directly compared. We find the pressure drop and flow parameter changes acceptable because of the indicated consistency with the approved WCAP-10924-P methodology. Because WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) has been approved for referencing (February 8, 1991), and because NSP has provided acceptable referencing information, we find the Prairie Island Units 1 and 2 reference of WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) acceptable.

The February 5, 1991, submittal also provides the results of LOCA analyses performed with the updated methodology. The licensee did not identify any significant changes in assumptions or inputs to the analyses (other than those identified above) from those in the previous licensing basis LOCA analyses (approved in SE dated September 16, 1988). These previous analyses identified the appropriate set of input conditions and a worst break, double-ended, cold-leg guillotine (DECLG) break with a break discharge coefficient (Cd) of 0.4. Using the updated methodology for an assumed DECLG Cd = 0.4 break, the calculated peak cladding temperature is 2109°F, the calculated maximum local metal/water reaction is 6.6 percent, and the calculated total core-wide metal/water reaction is less than 0.3 percent which are below the allowable limits specified in 10 CFR 50.46(b) of 2200°F, 17 percent and 1 percent, respectively. The analyses were performed based on a total peaking factor of 2.4 at 102 percent of the rated NSSS power level of 1650 megawatts thermal.

As discussed above, we find that the LOCA analysis methodology described in WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) has been acceptably referenced for analysis of Prairie Island Units 1 and 2, and that the LOCA analyses submitted February 5, 1991 using the August 1990 updated methodology are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve 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 or changes in surveillance requirements. The staff has determined that the amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet 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 these amendments.

4.0 CONCLUSIONS

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) 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: Frank Orr, SRXB/DST

Date: February 11, 1991