

Docket No. 50-282

OCT 25 1974

Northern States Power Company  
ATTN: Mr. L. O. Mayer  
Director of Nuclear Support Systems  
414 Nicollet Avenue  
Minneapolis, Minnesota 55401

Gentlemen:

The Commission has issued Amendment No. 6 to Facility Operating License No. DPR-42 to Northern States Power Company (licensee). Amendment No. 6 to DPR-42 incorporates broad possession and use limits for byproduct and special nuclear materials in paragraphs B(2), B(3), B(4), B(5) of the license in place of the specific limits that were in the license. The specific limits have been included in the Final Safety Analysis Report (FSAR), Section 11.4 by FSAR Amendment 37 and 38.

Amendment No. 6 to DPR-42 also provides Change No. 6 to the Technical Specifications in response to licensee's letters dated May 24, 1974, September 3, 1974, and October 4, 1974.

The Regulatory staff has evaluated the safety implications of Amendment No. 6 to DPR-42, including Change No. 6 to the Technical Specifications, and concluded that the authorization of this license amendment does not involve a significant hazards consideration. We have also concluded that there is reasonable assurance (1) that the activities authorized by Amendment No. 6 can be conducted without endangering the health and safety of the public, (2) that such activities will be conducted in compliance with the Commission's regulations, and (3) that the issuance of Amendment No. 6 will not be inimical to the common defense and security or to the health and safety of the public. The Regulatory staff's Safety Evaluation is enclosed.

Copies of Amendment No. 6 to DPR-42 and a related notice which has been forwarded to the Office of the Federal Register for publication, are enclosed.

Sincerely,

Original signed by  
K. Kniel

Karl Kniel, Chief

LB

|            |                                    |                   |                   |   |                  |
|------------|------------------------------------|-------------------|-------------------|---|------------------|
| OFFICE →   | LWR 2-2<br>M. Service<br>L. Hunter | LWR 2-2<br>KKniel | OGC<br>M. Kaufman | Light Water Reactors Branch 2-2<br>Directorate of Licensing | AD, LWR<br>Moore |
| SURNAMES → | Enclosures                         |                   |                   |   |                  |
| DATE →     | As stated 10/18/74                 | 10/21/74          | 10/23/74          |   | 10/25/74         |

CCS:

Gerald Charnoff, Esquire  
Shaw, Pittman, Potts & Trowbridge  
910 17th Street, NW  
Washington, D. C. 20006

Steve J. Gadler, P.E.  
2120 Carter Avenue  
St. Paul, Minnesota 55108

Sandra S. Gardebring, Esquire  
Counsel for Minnesota Pollution  
Control Agency  
1935 W. County Road B2  
Roseville, Minnesota 55113

Mr. Gary Williams  
Federal Activities Branch  
Environmental Protection Agency  
1 N. Wacker Drive  
Chicago, Illinois 60606

Mr. William F. Eich, Chairman  
Public Service Commission of Wisconsin  
Hill Farms State Office Building  
Madison, Wisconsin 53702

Warren R. Lawson, M.D.  
Secretary and Executive Officer  
State Department of Health  
University Campus  
Minneapolis, Minnesota 55440

Mr. Bernard Cranum  
Area Director  
Bureau of Indian Affairs  
U.S. Department of Interior  
831 Second Avenue, South  
Minneapolis, Minnesota 55402

Mr. John E. Davidson  
Goodhue County Board of Commissioners  
321 West Third Street  
Red Wing, Minnesota 55066

bcc:

J. R. Buchanan, ORNL  
T. B. Abernathy, DTIE  
A. Rosenthal, ASLAB  
N. Goodrich, ASLBP

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Mr. Bruce Blanchard  
Environmental Projects Review  
Department of the Interior  
Room 5321  
18th and C Streets, N. W.  
Washington, D. C. 20240

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UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

October 25, 1974

SAFETY EVALUATION BY THE DIRECTORATE OF LICENSING SUPPORTING CHANGE NO. 6 TO TECHNICAL SPECIFICATIONS FOR PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 (DOCKET NOS. 50-282 AND 50-306) LICENSE NOS. DPR-42, AMENDMENT 6 AND DPR-60

INTRODUCTION

By letters dated May 24, 1974, September 3, 1974, and October 4, 1974, Northern States Power Company requested changes to the Technical Specifications for the Prairie Island Nuclear Generating Plant. The Technical Specifications were prepared for operation of Units 1 and 2 at the time of issuance of the Unit 1 license (DPR-42). Certain data for Unit 2 and Unit 2 equipment numbers were not available at that time. The proposed changes include:

1. Changes required to complete the specifications for Unit 2 (DPR-60)
2. Changes to clarify the intent of certain specifications that were found by licensee and inspectors to be difficult to understand.
3. Changes required to correct proofreading errors.
4. Corrective changes to make the specifications consistent with those for currently-issued licenses.

Change No. 6 to the Technical Specifications covers the major portion of the proposed changes.

Change No. 6 to the Technical Specifications also provides a new specification for leakage tests of sealed sources containing radioactive materials (TS 4.11). Consistent with current Regulatory staff practise, the Unit 2 Operating License (No. DPR-60) and Amendment 6 to the Unit 1 Operating License (No. DPR-42) are being issued with broad possession and use limits on radioactive materials. The specific limits of byproduct materials and special nuclear materials and a description of licensee's program, facilities, personnel and procedures for safe storage, handling, and use of radioactive materials have been included in the FSAR, Section 11.4 by Amendment 37, dated March 29, 1974, and by Amendment 38, dated May 3, 1974.

The changes issued in Change No. 6 to the Technical Specifications and the types of changes are identified in the following tabulation. Principal changes are discussed below.

CHANGES IN TECHNICAL SPECIFICATIONS

| Technical Specification<br>Page No. | Type of Change                                  | Discussion Paragraph |
|-------------------------------------|---|----------------------|
| TS-ii                               | Correct proofreading errors and                 |                      |
| TS-iii                              | Provide updated information                     |                      |
| TS-iv                               |   |                      |
| TS1-6                               | Delete unused definition and add new one        | 1, 6                 |
| TS2.3-3                             | Clarify intent                                  | 2                    |
| TS2.3-4                             | Clarify intent                                  | 2                    |
| TS 2.3-5                            | Correct proofreading error                      |                      |
| TS 3.1-2                            | Clarify intent                                  |                      |
| TS 3.1-4                            | Provide Unit 2 Specification                    | 3                    |
| TS 3.1-5                            | Provide Unit 2 Specification                    | 3                    |
| Table TS 3.1-1                      | Provide Additional Unit 1 data                  | 3                    |
| Table TS 3.1-2                      | Provide Unit 2 data                             | 3                    |
| Figure TS 3.1-1                     | Provide Unit 2 Specification                    | 3                    |
| Figure TS 3.1-2                     | Provide Unit 2 Specification                    | 3                    |
| TS 3.2-1                            | Clarify intent                                  | 4                    |
| TS 3.2-2                            | Clarify intent                                  | 4                    |
| TS 3.2-3                            | Clarify intent                                  | 4                    |
| TS 3.3-1                            | Clarify intent and delete unused exception      | 1, 4, 5              |
| TS 3.3-2                            | Clarify intent and del.                         |                      |
| TS 3.3-3                            | Correct proofreading error and clarify intent   |                      |
| TS 3.3-4                            | Clarify intent and delete unused exception      | 1, 4                 |
| TS 3.3-5 & 5A                       | Clarify intent and delete unused exception      | 1, 4, 6              |
| TS 3.3-6                            | Delete unused basis                             | 6                    |
| TS 3.4-2                            | Clarify intent                                  | 4                    |
| Table TS 3.5-2<br>(page 2 of 2)     | Clarify intent                                  | 7                    |
| TS 3.6-1                            | Clarify intent                                  |                      |
| TS 3.6-2                            | Clarify intent                                  |                      |
| TS 3.6-4                            | Correct proofreading error                      |                      |
| TS 3.6-5                            | Provide updated information                     |                      |
| TS 3.7-1                            | Clarify intent and provide Unit 2 specification | 4                    |
| TS 3.7-2                            | Clarify intent and provide Unit 2 specification | 4, 6                 |
| TS 3.7-3                            | Delete unused basis                             | 6                    |
| TS 3.8-2                            | Clarify intent                                  |                      |
| TS 3.8-3                            | Clarify intent                                  |                      |
| TS 3.10-6                           | Clarify intent                                  | 7                    |
| TS 3.10-7                           | Clarify intent                                  | 7                    |
| TS 3.10-10                          | Correct proofreading error                      |                      |
| TS 4.1-1                            | Clarify intent                                  | 8, 9                 |

|                           |  |    |
|---------------------------|--|----|
| Table TS 4.1-1            | Clarify intent   | 10 |
| (p 1, 2, & 4)             |  |    |
| Table TS 4.1-2a           | Clarify intent   |    |
| Table TS 4.2-1            |  |    |
| (p 1, 2, 3, 6, 7, 8 of 9) | Correct proofreading error                                 |    |
| TS 4.3-1                  | Correct proofreading error                                 |    |
| TS 4.4-2                  | Clarify intent   | 11 |
| TS 4.4-3                  | Clarify intent   | 11 |
| TS 4.4-4                  | Provide additional Unit 1 data                             |    |
| TS 4.4-7                  | Provide updated information                                |    |
| TS 4.4-9                  | Provide updated information                                |    |
| Table TS 4.4-1            | Provide Unit 2 specification and clarify intent            |    |
| TS 4.6-1                  | Clarify intent   |    |
| TS 4.8-1                  | Clarify intent   |    |
| TS 4.10-1                 | Correct proofreading error                                 |    |
| TS 4.11-1                 | Provide new specification                                  | 12 |
| TS 4.11-2                 | Provide new specification                                  | 12 |
| TS 5.2-4                  | Provide updated information                                |    |
| Figure TS 6.1-2           | Provide updated information                                |    |
| Table TS 6.5-1            |  |    |
| (p 1 of 3)                | Provide updated information                                | 13 |
| Table TS 6.7-1            |  |    |
| (p 1 of 2)                | Provide updated specification                              |    |
| Table TS 6.7-1            |  |    |
| (p 2 of 2)                | Correct proofreading error and provide updated information |    |

## DISCUSSION

1. The Technical Specifications required certain engineered safety features to be operable when a reactor is operated. In the initially issued Specifications an exception from certain of the requirements was provided for low temperature physics tests in which the reactor is made critical at temperatures less than 200°F. The licensee has not run such tests and does not plan to run any such tests. Therefore the definition in Section 1 and the exceptions in Section 3.3 are deleted.
2. The specifications on pages TS 2.3-3 and 2.3-4 require certain interlocks to be effective over a range of values and require certain operator actions at certain power levels. It was the intent that these actions occur at approximately 10% power level, without specifying a range over which such actions could occur. The change provides that such actions shall occur over a range of 9 to 12% power level. This is a more accurate reflection of the intent of these requirements and is an acceptable range for such requirements.
3. The changes in Technical Specification 3.1 B "Heatup and Cooldown " were made to provide a specification for Unit 2, based on the Unit 2 reactor vessel toughness data provided in Table TS 3.1-2. Some additional Unit 1 reactor vessel toughness data has been added in Table TS 3.1-1. The Regulatory staff has evaluated the Unit 2 data and the additional Unit 1 data and finds that the heatup curve (Figure TS 3.1-1) and the cooldown curve (Figure TS 3.1-2) Originally provided for Unit 1 remain valid for the additional Unit 1 data and they can also be conservatively used for Unit 2. Consequently, the heatup and cooldown curves previously approved for Unit 1 remain unchanged.
4. In its May 24, 1974 letter, the licensee requested changes to the limiting conditions for operation in Specification 3.2 "Chemical and Volume Control System," Specification 3.3 "Engineered Safety Systems, Specification 3.4 "Steam and Power Conversion System," and Specification 3.7 "Auxiliary Electric Systems," that would explicitly prohibit certain operations during plant heatup as well as during the process of making the reactor critical. The Regulatory staff recognizes that Technical Specifications for operating PWRs, such as Prairie Island Unit 1, do not explicitly identify all modes of reactor operation for which the limiting conditions for operation apply. The staff is currently developing Standard Technical Specifications that will address the various modes of operation to which various limiting conditions for operation apply. When completed, the Standard Technical Specifications will be used for guidance with respect to Prairie Island Technical Specifications. In the interim, those requested changes that will

assure clarity in the application of the specifications to the startup operation mode have been added to the Prairie Island Technical Specifications. The licensee also requested changes to these specifications that would permit one of two redundant engineered safety features to be inoperable during plant startup after an outage provided it was made operable during the time limits specified for such inoperability. These changes are still under review.

5. As discussed in paragraph 4 above, Change No. 6 to the Technical Specification explicitly addresses the startup mode of operation whereas the previous Technical Specification did not. Consistent with this change, the plant startup condition during which safety injection pumps should be de-energized is also explicitly addressed. The change does not alter the normal plant startup procedure. During one part of the normal plant startup, the reactor coolant system, including the pressurizer is filled with water. Inadvertant operation of the safety injection pumps are de-energized during this plant condition. The previous Technical Specifications, requiring that the injection pumps be operable when the reactor is made critical after reactor heatup did not explicitly cover this step in the normal startup procedure. Change No. 6 requires that the safety injection pumps be operable during reactor heatup when a steam bubble has been established in the pressurizer.
6. The initially issued Technical Specification 3.3 "Engineered Safety Features" and 3.7 "Auxiliary Electrical System" and their bases contained a requirement that any occurrence of inoperability permitted by the Technical Specifications be reported as an abnormal occurrence. The intent was that all occurrences of plant operation without redundant engineered safety features be reported. Since that time, Regulatory Guide 1.16, Revision 2, issued in September 1974 has more explicitly defined reporting requirements, including the reporting of such operation without redundant equipment. Regulatory Guide 1.16 recommends that such information be reported in monthly reports. The Prairie Island Technical Specifications have been modified to require such information within 30 days.
7. In the initially issued Technical Specifications, two specifications required operator action if monitors of control rod position and quadrant power tilt were inoperable (Table TS 3.5-2), item 15 and TS 3.10 paragraphs I and J). The required frequency for logging rod position was inconsistent between the two specifications and understanding required actions was difficult. These specifications have been clarified by putting required actions in TS 3.10 and referring to them in TS 3.5.

8. In its September 3, 1974 request, the licensee requested that the surveillance tests for the equipment scheduled for tests during refueling shutdowns be specified to coincide with regularly scheduled refueling outages. The surveillance test interval for such tests was limited to  $12 \pm 3$  months in the initially issued Technical Specification 4.0, page TS 4.1-1. The Regulatory staff intended that tests, such as the containment leak rate, be performed during plant shutdowns for other purposes, such as refueling shutdowns. The staff agrees with the licensee that the present limit of  $12 \pm 3$  months based on design refueling shutdowns does not adequately account for the low availability factor experienced during the first years of operation and should be changed. However, the surveillance test interval should not be extended to coincide with refueling shutdowns, if extended forced outages for other purposes result in a long time interval between scheduled refueling outages. In such cases, surveillance tests should be scheduled during the extended forced outages that occur between refueling outages. The revised specification requires such tests within an interval of  $18 \text{ months} \pm 6 \text{ months}$ . This test interval is consistent with the requirements now being developed for Standard Technical Specifications.
9. Specification 4.1D has been revised to identify more explicitly, the tests required during and following a plant shutdown.
10. Table TS 4.1-1, Items 4, 8a, 9, and 10 have been revised to more precisely specify the staff's intent that control rod position monitoring instrumentation receive at least a monthly test when possible. The design of these instruments is such that they can only be tested during plant shutdown. The previous specifications requiring a test prior to each startup if not done the previous week, used the same test schedule as that for instruments used for startup. However, due to the large number of shutdowns during the first years of operation, these rod position monitors were tested much more frequently than necessary to assure adequate operation. The test schedule for these monitors has been changed to provide for tests during plant shutdowns if not done within the previous 30 days.
11. In its September 3, 1974 letter, the licensee requested clarification of the intent in Appendix J to test airlocks. Licensee requested that both the inner volume and the space between gaskets on doors be tested at a reduced pressure of 10 psig rather than the full accident pressure of 46 psig. For tests of the inner volume

(the space between the two doors) the pressure on the inner door is in the opposite direction from that under accident conditions. Licensee uses temporary strong backs on the inner door for pressure tests of the inner volume at 46 psig. For intergasket tests (tests in which pressure is applied between the two gaskets on each door) the pressure on one of the gaskets is in the opposite direction from that under accident conditions and the pressure tends to offseat the gasket. Repeated intergasket tests at full accident pressure may lead to gasket degradation. Intergasket tests at 10 psig are sufficient to demonstrate gasket integrity without offseating and potential damage to the gaskets. The periodic full pressure inner volume tests will provide testing of airlock leakage without gasket damage. Regarding frequency of the tests, the requested 6-month interval for inner volume tests is satisfactory and does not change present requirements. The frequency of the intergasket tests should be performed each 3 days when the air lock is used rather than every week as requested in order to provide a high degree of assurance of gasket integrity.

12. The new specification 4.11 "Radioactive Source Leakage Test" has been added to require detection and correction of leakage of radioactive material from sealed sources. This specification, together with broad possession and use limits in the Prairie Island facility licenses is consistent with those for other currently issued licenses. The Regulatory staff has reviewed the licensee's program for handling such materials, as described in FSAR Section 11.4. The quantities of byproduct materials and special nuclear materials listed in FSAR Table 11.4-1 are the same as those included in the Unit 1 license, DPR-42, including Amendment 4. Based on its review, the staff has concluded that such materials will be safely handled.
13. The changes in the protection factors for respirators, Table TS 6.5-1, (page 1 of 3) have been requested pursuant to tests that have shown previous factors to be excessive and the change reduces the factors in the previous Technical Specifications to those supported by test results. The Regulatory staff agreed with the requested changes and therefore has included them in Change No. 6.

#### CONCLUSION

The Regulatory staff has concluded, based on the reasons discussed above, that the authorization of Amendment No. 6 to DPR-42, including Change No. 6 to the Technical Specifications does not involve a significant hazards consideration because: (1) none of the changes involve a

significant increase in the probability of an accident, (2) none of the changes involve a significant increase in the consequences of an accident, and (3) none of the changes involve a significant decrease in a safety margin. We also conclude there is reasonable assurance (i) that the activities authorized by Amendment No. 6 can be conducted without endangering the health and safety of the public, (ii) that such activities will be conducted in compliance with the Commission's regulations and (iii) that the issuance of this Amendment No. 6 will not be inimical to the common defense and security or to the health and safety of the public.



Lester L. Kintner  
Senior Project Manager  
Light Water Reactors Branch 2-2  
Directorate of Licensing



Karl Kniel, Chief  
Light Water Reactors Branch 2-2  
Directorate of Licensing

UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NO. 50-282

NORTHERN STATES POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO  
FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Atomic Energy Commission (the Commission) has issued Amendment No. 6 to Facility Operating License No. DPR-42, issued to Northern States Power Company, which revised the license for operation of the Prairie Island Nuclear Generating Plant, Unit 1 (the facility), located in Goodhue County, Minnesota. The amendment is effective as of its date of issuance.

The amendment revised the license to incorporate broad possession and use limits for byproduct and special nuclear materials, and the Technical Specifications to provide clarification necessitated by operating experience during the past year.

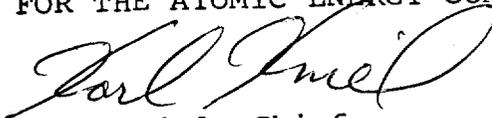
The applications for the amendment comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

For further details with respect to this action, see (1) the applications for amendment dated May 24, September 3, and October 4, 1974; (2) Amendment No. 6 to License No. DPR-42, with any attachments; and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., and at the Environmental Library of Minnesota, 1222 S. E. 4th Street, Minneapolis, Minnesota 55414.

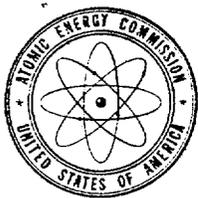
A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Atomic Energy Commission, Washington, D. C. 20545, Attention: Deputy Director for Reactor Projects, Directorate of Licensing - Regulation.

Dated at Bethesda, Maryland, this ~~25~~<sup>24</sup> day of October 1974.

FOR THE ATOMIC ENERGY COMMISSION



Karl Kniel, Chief  
Light Water Reactors Branch 2-2  
Directorate of Licensing



UNITED STATES  
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 6  
License No. DPR-42

1. The Atomic Energy Commission (the Commission) having found that:
  - A. The applications for amendment by Northern States Power Company (the licensee) dated May 24, September 3, and October 4, 1974, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended, 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. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraphs 2.B.(2), (3), (4), (5), and 2.C.(2) of Facility Operating License DPR-42 are hereby amended to read as follows:

- B. (2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended, as of Amendment 38;
- (3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any by-product, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Part 30 to receive, possess and use at any time 100 millicuries each of any byproduct material without restriction to chemical or physical form, for sample analysis or instrument calibration;
- (5) Pursuant to the Act and 10 CFR Parts 40 and 70, to receive, possess and use at any time 100 milligrams each of any source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration.

C. (2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 6.

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

FOR THE ATOMIC ENERGY COMMISSION

*Voss A. Moore*

Voss A. Moore, Assistant Director  
for Light Water Reactors, Group 2  
Directorate of Licensing

Attachment:

Change No. 6 to Appendix A  
Technical Specifications

- See Rpts.  
Jacket

Date of Issuance:

OCT 25 1974