

October 1, 2003

Mr. Joseph M. Solymossy  
Site Vice President  
Prairie Island Nuclear Generating Plant  
Nuclear Management Company, LLC  
1717 Wakonade Drive East  
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 -  
ISSUANCE OF AMENDMENTS REGARDING ADDITION OF 1-HOUR SOAK  
TIME FOR CONTROL ROD DRIVE MECHANISMS (TAC NOS. MB8005 AND  
MB8006)

Dear Mr. Solymossy:

The Commission has issued the enclosed Amendment No. 160 to Facility Operating License No. DPR-42 and Amendment No. 151 to Facility Operating License No. DPR-60 for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated March 11, 2003, as supplemented July 16, 2003.

The amendments revise TS 3.1.4, "Rod Group Alignment Limits," and TS 3.1.7, "Rod Position Indication," to add a 1-hour soak time to both TSs to allow the control rod drive mechanisms additional time following substantial rod motion to reach thermal equilibrium.

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,

/RA/

Anthony C. McMurtray, Senior Project Manager, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosures: 1. Amendment No. 160 to DPR-42  
2. Amendment No. 151 to DPR-60  
2. Safety Evaluation

cc w/encls: See next page

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cc w/encls: See next page

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\*Provided SE input by memo

OFFICE	PDIII-1/PM	PDIII-1/LA	SRXB/SC*	OGC	PDIII-1/SC
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DATE	09/08/03	09/08/03	08/14/03	09/25/03	10/01/03

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OFFICIAL RECORD COPY

Prairie Island Nuclear Generating Plant,  
Units 1 and 2

cc:

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September 2003

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-282

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 160  
License No. DPR-42

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Nuclear Management Company, LLC (the licensee), dated March 11, 2003, as supplemented July 16, 2003, 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-42 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 160, 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 its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

L. Raghavan, Section Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 1, 2003

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-306

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 151  
License No. DPR-60

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Nuclear Management Company, LLC (the licensee), dated March 11, 2003, as supplemented July 16, 2003, 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. 151, 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 its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

L. Raghavan, Section Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 1, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 160

TO FACILITY OPERATING LICENSE NO. DPR-42

AND LICENSE AMENDMENT NO. 151

TO FACILITY OPERATING LICENSE NO. DPR-60

DOCKET NOS. 50-282 AND 50-306

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.1.4-1  
3.1.7-1

INSERT

3.1.4-1  
3.1.7-1



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 160 TO FACILITY OPERATING LICENSE NO. DPR-42  
AND AMENDMENT NO. 151 TO FACILITY OPERATION LICENSE NO. DPR-60  
NUCLEAR MANAGEMENT COMPANY, LLC  
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-282 AND 50-306

## 1.0 INTRODUCTION

By application dated March 11, 2003, as supplemented July 16, 2003, the Nuclear Management Company, LLC (the licensee), requested changes to the Technical Specifications (TSs) for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2. The July 16, 2003, supplement provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on April 15, 2003 (68 FR 18280).

The proposed amendments would change TS 3.1.4, "Rod Group Alignment Limits," and TS 3.1.7, "Rod Position Indication," to add a 1-hour soak time to both TSs to allow the control rod drive mechanisms additional time following substantial rod motion to reach thermal equilibrium.

TS 3.1.7, with its associated surveillance requirements (SRs), requires rod position indication (RPI) for each control rod to be within 12 steps of the demand position indication when the control rod is in the middle region of the core ( $>30$  and  $<215$  steps) or within 24 steps of the demand position indication when the control rod is at the lower or upper ends of rod travel ( $\leq 30$  or  $\geq 215$  steps). Agreement between the RPI and the demand position indication ensures the RPI is functioning properly. Similarly, TS 3.1.4 requires the rod position indication to be within these same limits for the control rods to be considered properly aligned. If the control rods are not properly aligned, TS 3.1.7 requires the licensee to verify the position of the rods using the movable incore detectors.

PINGP, Units 1 and 2, along with other Westinghouse plants, has experienced difficulty maintaining the RPI within these limits. Typically, PINGP experiences this problem during evolutions where substantial rod motion occurs. The nuclear industry has attributed this problem to thermal instabilities that affect the accuracy of the instrumentation system. In these cases, the indication system incorrectly reports a misalignment. The licensee confirms the rods are actually aligned following a brief soak time wherein the RPI returns to thermal equilibrium and agreement with the demand position indication.

The licensee proposes to add a 1-hour soak time note to TSs 3.1.4 and 3.1.7. The NRC staff has approved similar changes for other Westinghouse plants, such as Salem Units 1 and 2, Indian Point Unit 3, and Point Beach Units 1 and 2.

## 2.0 REGULATORY EVALUATION

Prairie Island Updated Safety Analysis Report (USAR) Section 3.1.2.1, "Reactor Core Design," requires "the reactor core, with its related controls and protective systems, shall be designed to function throughout its design lifetime without exceeding acceptable fuel damage limits." Also, "the core and related auxiliary system designs shall provide this integrity under all expected conditions of normal operation with appropriate margins for uncertainties and for specified transient situations." Prairie Island USAR Section 7.4.1.1.1, "Reactor Protection System," requires that "core protection systems, together with associated equipment, be designed to prevent or suppress conditions that could result in exceeding acceptable fuel damage limits." The NRC staff reviewed the amendment request to ensure that the licensee complied with these USAR sections by ensuring the rods would continue to be capable of performing their safety function and the acceptable fuel damage limits would not be exceeded.

## 3.0 TECHNICAL EVALUATION

The NRC staff reviewed the following aspects of the licensee's request to determine acceptability: 1) the ability of operations personnel to identify a misaligned rod during soak-time periods; and 2) the effects of soak time on the current licensed accident analyses. For each part of the review, the NRC staff evaluated whether the licensee's controls, procedures, and analyses provided reasonable assurance that adequate safety margins, in accordance with NRC regulations, are present and can be maintained if the NRC staff approves the proposed changes.

The licensee's proposed TS changes would permit a 1-hour soak time, during which the RPI may falsely indicate rods are not within their TS-required deviation limits. During the soak-time period, the RPI may indicate misalignment despite the rods actually being within their alignment limits. This soak time allows the RPI system to return to thermal equilibrium and indicate the actual position.

In its July 16, 2003, supplemental letter, the licensee provided additional information which described procedures in place to ensure the operators would promptly identify any rod misaligned. If the rods indicate misalignment, the operators will receive indication of this condition via the RPI system and the annunciator labeled "Computer Alarm Rod Deviation/Sequencing." The procedural response to this alarm requires the operators to perform the rod position verification surveillance procedure. Additionally, the procedure for control rod and rod position indication systems requires the operators to verify and/or sign-off that the control rod bank step counters and the RPI system indicators show appropriate rod motion during manual rod movements. These procedures, coupled with the procedure for a misaligned rod, stuck rod, or RPI failure and/or drift provide reasonable assurance that the operators will promptly identify any misaligned rod. The licensee stated that these procedures will not change with the approval of the proposed amendments. The NRC staff finds the licensee's procedures provide reasonable assurance that the operators will promptly identify a misaligned control rod.

In addition to reviewing the procedural controls to ensure the licensee will identify misaligned control rods, the NRC staff reviewed the effects of the proposed changes on accidents which are caused by rod misalignments. Even though the licensee has procedures in place to identify a misaligned rod, the proposed changes would potentially allow a misaligned rod to go undetected for an additional hour. However, the licensee has detailed procedures in place that will provide a high probability of identifying a misaligned rod during the proposed 1-hour soak time.

In its March 11, 2003, application, the licensee stated that the PINGP safety analyses consider two types of misalignment events, static misalignments and a dropped rod. The licensee's analysis of a static misalignment assumes one fully withdrawn rod with all other rods at the full power insertion limit. The licensee assumes no operator intervention and the analysis predicts that the event would not result in any fuel pin failure. This shows that the misalignment event is not time-dependent with regard to fuel failure. An additional hour would not increase the risk to the public since the probability of the rod being misaligned will not change. Likewise, the licensee's dropped rod analysis assumes no operator action and the results show that no fuel failure would occur. Therefore, the NRC staff agrees that the dropped rod event is not time-dependent and the additional hour would not increase the consequences of the event nor increase the risk to the public.

Since the licensee's analyses demonstrate that misaligned rod events are not time-dependent and neither the consequences nor the probability of these events would increase, the NRC staff agrees that the licensee's proposed changes would not increase the risk to the public. Additionally, the NRC staff finds that appropriate operator actions, as described in the PINGP procedures, would provide a high probability of identifying any misaligned rods during the proposed 1-hour soak time. The NRC also finds that operator actions will ensure that rods will be capable of performing their function and analyses show that acceptable fuel damage limits will not be exceeded.

The NRC staff reviewed the effects of the proposed changes against USAR Sections 3.1.2.1 and 7.4.1.1.1. The NRC staff found that the licensee's amendment request provided reasonable assurance that the addition of a 1-hour soak-time note to TSs 3.1.4 and 3.1.7 would not adversely affect the ability of the operators and the reactor protection system to adequately protect both PINGP and the public. Additionally, the proposed change will not prevent the reactivity protection system from performing its intended function and the acceptable fuel damage limits will not be exceeded. Therefore, the NRC staff finds the licensee's amendment request acceptable.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified of the proposed issuance of the amendment. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or change the surveillance requirements. The NRC 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 (68 FR 18280). 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.

## 6.0 CONCLUSION

The Commission 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.

Principal Contributor: R. Taylor

Date: October 1, 2003