

June 27, 2000

Mr. M. Wadley  
President, Nuclear Generation  
Northern States Power Company  
414 Nicollet Mall  
Minneapolis, MN 55401

SUBJECT: PRAIRIE ISLAND - NRC EXAMINATION REPORT 50-282/2000301(DRS);  
50-306/2000301(DRS)

Dear Mr. Wadley:

On May 19, 2000, the NRC completed initial operator licensing examinations at your Prairie Island Units 1 and 2 reactor facilities. The enclosed report presents the results of the examination.

Your training department personnel administered the written examination on May 15, 2000. NRC examiners administered the operating examination during the same week. Four of your licensed reactor operators were administered senior reactor operator examinations. The license applicants' performance evaluations were finalized on June 20, 2000. Two applicants passed all sections of their examinations; however, they will not be issued senior reactor operator licenses until possible appeals are resolved. One applicant demonstrated unsatisfactory performance on the written examination and one applicant on the administrative portion of the operating examination. These individuals were not issued senior reactor operator licenses. Two of four applicants failing the examination was an abnormally high failure rate. Your staff would be expected to evaluate these failures to determine whether deficiencies exist in your initial licensed operator training program.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

M. Wadley

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We will gladly discuss any questions you have concerning this examination.

Sincerely

**/RA/**

David E. Hills, Chief  
Operations Branch  
Division of Reactor Safety

Docket Nos. 50-282; 50-306  
License Nos. DPR-42; DPR-60

Enclosures:   1. Operator Licensing Examination Report  
                  50-282/2000301(DRS); 50-306/2000301(DRS)  
                  2. Facility Comments and NRC Resolutions  
                  3. Simulator Fidelity Report  
                  4. Written Examination and Answer Keys (SRO)

cc w/encls 1, 2, 3:   Site General Manager, Prairie Island  
                          Plant Manager, Prairie Island  
                          J. Malcolm, Commissioner, Minnesota  
                          Department of Health  
                          State Liaison Officer, State of Wisconsin  
                          Tribal Council, Prairie Island Dakota Community

cc w/encls 1, 2, 3, 4: J. Jensen, Training Department

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-282; 50-306  
License Nos: DPR-42; DPR-60

Report No: 50-282/2000301(DRS); 50-306/2000301(DRS)

Licensee: Northern States Power Company

Facility: Prairie Island Nuclear Generating Plant

Location: 1717 Wakonade Drive East  
Welch, MN 55089

Dates: May 15-18, 2000

Examiners: M. Bielby, Chief Examiner  
D. Pelton, Examiner  
G. Wilson, Observer

Approved by: David E. Hills, Chief Operations Branch  
Division of Reactor Safety

## NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas) reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none"><li>● Initiating Events</li><li>● Mitigating Systems</li><li>● Barrier Integrity</li><li>● Emergency Preparedness</li></ul>	<ul style="list-style-type: none"><li>● Occupational</li><li>● Public</li></ul>	<ul style="list-style-type: none"><li>● Physical Protection</li></ul>

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

## EXAMINATION SUMMARY

### Prairie Island Nuclear Generating Plant NRC Inspection Report 50-282/2000301(DRS); 50-306/2000301(DRS)

During the week of May 15, 2000, NRC examiners conducted an announced operator licensing initial examination in accordance with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8. This examination implemented the operator licensing requirements of 10 CFR §55.41, §55.43 and §55.45.

Four senior reactor operator applicants were administered the written examination and operating tests. The licensee administered the written examination on May 15, 2000. The NRC administered the operating test during the same week.

#### Examination Summary:

- Two applicants passed all portions of their respective examinations, but were not issued senior reactor operator licenses until appeals are resolved. One applicant failed the written examination and one applicant failed the administrative portion of the operating examination. These individuals did not receive senior reactor operator licenses. Two of four applicants failing the examination was an abnormally high failure rate (Section 4OA5.1).

## Report Details

### **4. OTHER ACTIVITIES**

#### 4OA5 Other

##### .1 Initial Licensing Examinations

###### a. Inspection Scope

The NRC examiners conducted announced operator licensing initial examinations during the week of May 15, 2000. The facility licensee developed the written examinations and operating tests. Four senior reactor operator applicants received written examinations and operating tests.

###### b. Issues and Findings

The licensee's training department personnel administered the written examination on May 15, 2000, in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8. The NRC examiners independently graded the written examination and concluded that three applicants achieved the passing criteria of 80 percent and one applicant did not. The licensee submitted one post-examination comment on the written examination. The comment and the NRC's resolution are contained in Enclosure 2 of this report.

The NRC examiners determined that the written examination, as originally submitted by the licensee, was outside the acceptable quality range expected by the NRC. This determination was based on the fact that 28 written questions required replacement or significant modification when reviewed in accordance with NUREG-1021. The problems identified with the written examination included, but were not limited to, questions submitted with multiple correct answers, 60 percent of the questions were written at the memory level (NUREG-1021 allows for no more than 50 percent), and questions submitted containing multiple inappropriate distractors. The licensee indicated that they would be performing a root cause analysis to address the submitted examination quality. The licensee would be expected to incorporate any lessons learned from this effort into future examination submittals.

The NRC examiners administered the operating tests during the week of May 15, 2000. One applicant demonstrated unsatisfactory performance on the administrative portion of the operating examination and did not pass. The licensee submitted one post-examination comment on the operating examination. The comment and NRC's resolution are contained in Enclosure 2 of this report. The examiners identified the following generic performance deficiencies while administering the operating tests:

- During administration of a dynamic scenario that included a steam generator tube rupture with loss of coolant accident, a steam generator overfill condition resulted in a rapid pressure increase that caused cycling of the power operated relief valve (PORV) and a release pathway to the environment. The examiners observed that although individuals on both examination crews had sufficient time to take action, they did not focus on stopping the PORV actuation or demonstrate a concern for the release path. However, in this case, the reactor

coolant system activity level and steam generator in-leakage was insufficient to result in a significant release of contamination to the environment or to impact the offsite dose requirements contained in 10 CFR 100.

- Given plant conditions involving a loss of the main feedwater system in conjunction with a loss of the auxiliary feedwater and high head safety injection systems during an administrative job performance measure (JPM), several applicants mis-classified the event and as a result did not provide correct protective action recommendations.

The NRC examiners also identified several individual deficiencies in applicant performance during the operating examination which are described in each individual's examination report, Form ES-303-1, "Operator Licensing Examination Report." The NRC forwarded copies of the evaluations under separate correspondence to the Site Training Manager. The licensee submitted one post-examination comment. The comment and the NRC's resolution are contained in Enclosure 2 of this report.

The NRC examiners determined that the operating examination, as originally submitted, was within the range of acceptability expected for the proposed examination. The NRC examiners did not identify any significant security concerns associated with the development or administration of the tests.

The NRC examiners considered two of four applicants failing the examination to be an abnormally high failure rate.

#### 4OA6 Meetings (Including Exit Meeting)

##### .1 Exit Meeting Summary

The inspectors presented the preliminary examination observations to Mr. Schuelke and other members of licensee management at the conclusion of the operating test on May 19, 2000. The licensee acknowledged the issues presented. No proprietary information was identified.



## PARTIAL LIST OF PERSONS CONTACTED

### Licensee:

D. Schuelke, Station Manager  
T. Silverberg, Operations Manager  
D. Westphal, Operations Department Training Supervisor  
J. Jenson, Training Program Manager  
J. Kempkes, Initial License Training Lead

### NRC:

J. Munro, Nuclear Reactor Regulation (NRR), Operator Licensing Branch  
S. Ray, Senior Resident Inspector, Prairie Island

Facility Comments and NRC ResolutionsWritten Examination Question Number 59:

Comment: Recommend accepting both answers A (the original correct answer) and B as correct. Based on a review of Logic Diagram NF-40751-18, if the waste gas compressor were started in AUTO a pressure switch would stop the compressor if the waste gas header were to be reduced to 1.5 psig or less. If the compressor were started in MANUAL, the automatic shutdown feature would not be enabled. The stem of the question stated that the waste gas compressor was running, but did not state whether it were running in AUTO or in MANUAL. As a result of not stating the mode of operation in the stem, either answer A or B could be correct.

NRC Resolution: Recommendation accepted. Additional review of associated reference material supported the licensee's contention that knowledge of the mode of operation of the waste gas compressor would be required to preclude answer B from being correct.

Operating Examination JPM ADMIN-42, "Perform Interim Emergency Director Actions,"  
Revision 0:

Comment: Based on the setup of the approved JPM, recommend that a classification of Site Area Emergency with a protective actions recommendation (PAR) of "NONE" be accepted in addition to the original correct answer which was a declaration of a General Emergency. This recommendation is based on the fact that the authors did not take action to preclude the restoration of the main feedwater system during the JPM. One candidate stated to the examiner that he would have to upgrade to a General Emergency if main feedwater could not be established. From candidate experience with the procedure (FR-H.1, "Loss of Secondary Heat Sink"), they could reasonably conclude that main feedwater to the steam generators would be restored by procedure within a few minutes, and classify the event as a Site Area Emergency.

NRC Resolution: Recommendation was not accepted. Based on a review of the simulator setup, discussions with the licensee, and the initiating cues provided to the applicants, the "current" plant conditions presented to the applicants (i.e., loss of the feedwater system in conjunction with the loss of the auxiliary feedwater and high head injection systems) should have driven the applicants to classify the event as a General Emergency in accordance with Procedure F3-2, "Classifications of Emergencies," Revision 26, Attachment 1, Condition 7 or Condition 20. The examiner documented the statement of one applicant as "If auxiliary feedwater is not restored, it would be a General Emergency" which conflicts with the licensee's post examination statement that the applicant referenced "main feedwater." The examination JPM initial conditions, simulator indications, and examiner cues identified that auxiliary feedwater was not in operation and could not be cross-connected. During the examination, none of the applicants asked for the status of main feedwater, or stated they thought feedwater and/or condensate could be recovered.

The notion that the applicants would declare the event based on systems that may be restored at a later time is contrary to F3-2, paragraphs 3.4.1 and 5.5 which state, in part, that in the case of an event that rapidly escalates then de-escalates [due perhaps to the recovery of the main feedwater system], the initial emergency classification should be based on current plant conditions. In addition, the applicants were not aware of the cause of loss of feedwater and therefore had no basis to positively conclude that feedwater could be later restored. Basing an emergency classification and protective action recommendations on a non-conservative and unconfirmed assumption is not in the best interests of public safety.

SIMULATION FACILITY REPORT

Facility Licensee: Prairie Island Nuclear Generating Plant

Facility Licensee Docket No: 50-282; 50-306

Operating Tests Administered: May 15–18, 2000

The following documents observations made by the NRC examination team during the initial operator license examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM	DESCRIPTION
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1. None

**WRITTEN EXAMINATION AND ANSWER KEYS (SRO)**

This document will be available from ADAMS within 30 days under the title "Prairie Island Initial Examination 05/2000".