

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-282/87016(DRP); 50-306/87015(DRP)

Docket Nos. 50-282; 50-306

Licenses No. DPR-42; DPR-60

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

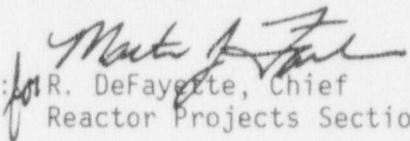
Facility Name: Prairie Island Nuclear Generating Plant

Inspection At: Prairie Island Site, Red Wing, Minnesota

Inspection Conducted: October 4 through November 14, 1987

Inspectors: J. E. Hard

M. M. Moser

Approved By:  R. DeFayette, Chief
Reactor Projects Section 2B

12/29/87
Date

Inspection Summary

Inspection on October 4 through November 14, 1987 (Reports No. 50-282/87016(DRP); No. 50-306/87015(DRP))

Areas Inspected: Routine unannounced inspection by resident inspectors of previous inspection findings, plant operational safety, maintenance, surveillances, ESF systems, spent fuel pool activities, LER followup, modifications, training, and meetings with corporate management.

Results: Of the nine areas inspected, no violations or deviations were identified in five areas; three violations were identified in three areas (Bus 15 inoperable with EDG No. 1 out of service, Paragraph 3; failure to follow procedures resulting in the cutting of the wrong electrical cable, Paragraph 9; and failure to follow visitor escort procedures, Paragraph 10). Additionally, three violations were also identified in Paragraphs 3 and 5; however, these were of minor safety significance and in accordance with 10 CFR 2, Appendix C, Section V.A., a Notice of Violation was not issued.

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DETAILS

1. Persons Contacted

- *L. Eliason, General Manager, Nuclear Plants
- **F. Tierney, General Manager, Nuclear Engineering and Construction
- **G. Neils, General Manager, Headquarters Nuclear Group
- **K. Albrecht, Director, Power Supply Quality Assurance
- **S. Northard, Senior Nuclear Program Consultant
- **R. Anderson, Manager, Nuclear Analysis
- **D. Musolf, Manager Nuclear Support Services
 - P. Kamman, Superintendent, Nuclear Operations Quality Assurance
- *E. Watzl, Plant Manager
 - D. Mendele, General Superintendent, Engineering and Radiation Protection
- *R. Lindsey, Assistant to the Plant Manager
 - M. Sellman, General Superintendent, Operations
 - D. Schuelke, Superintendent, Radiation Protection
 - G. Lenertz, General Superintendent, Maintenance
 - J. Hoffman, Superintendent, Technical Engineering
 - K. Beadell, Superintendent, Quality Engineering
 - M. Klee, Superintendent, Nuclear Engineering
 - R. Conklin, Supervisor, Security and Services
 - D. Vincent, Project Manager, Nuclear Engineering and Construction
 - J. Goldsmith, Superintendent, Nuclear Technical Services
- *A. Hunstad, Staff Engineer
- *A. Smith, General Superintendent, Planning and Services
 - A. Vukmir, Site Services Representative, Westinghouse Electric Corp.
 - C. Gerstberger, Fueling Service Manager, Westinghouse Electric Corp.
 - D. DiIanni, License Project Manager, NRR
 - C. Willis, Radiation Protection Branch, NRR
 - A. Gill, Electrical Systems Branch, NRR
 - T. Varjoranta, IAEA
 - H. Ashar, Structural and Geosciences Branch, NRR

The inspectors interviewed other licensee employees, including members of the technical and engineering staffs, shift supervisors, reactor and auxiliary operators, QA personnel, Shift Technical Advisors, and Shift Managers.

*Denotes those present at the exit interview of November 16, 1987.

**Denotes corporate personnel who were visited on October 29, 1987.

2. Licensee Action On Previous Inspection Findings (92701)

(Closed) Open Item 282/87005-02; 306/87005-02(DRP) Resolution of inconsistencies between ACDs and actual practice of establishing QC hold points.

Corrective action included reviewing with the technical staff the establishment of QC hold points by the responsible individual as specified in Administrative Control Directive ACD 3.2 Work Control and Review of Those Hold Points By Quality Engineering For Adequacy.

(Closed) Allegation (50-282/86-XX-01-G; 306/86-XX-01-G(DRP)) In November, 1986 the NRC received an allegation regarding brazing on safety-related components by uncertified brazers. The license was requested to investigate this allegation and reported that corrective actions were implemented with respect to the certification of brazers, that brazed components in question were adequate, and that all potential safety concerns were resolved in a letter dated October 8, 1987.

3. Operational Safety Verification (71707)

Unit 1 and Unit 2 were base loaded at 100% power except for reductions for surveillance testing.

The inspector observed control room operations, reviewed applicable logs, conducted discussions with control room operators, and observed shift turnovers. The inspector verified operability of selected emergency systems, reviewed equipment control records, and verified the proper return to service of affected components. Tours of the auxiliary building, turbine building and external areas of the plant were conducted to observe plant equipment conditions, including potential fire hazards, and to verify that maintenance work requests had been initiated for equipment in need of maintenance.

On October 9, 1987, radiation monitor R-23, Control Room Ventilation, was declared out of service because of a low reading when "bugged" during routine surveillance. The redundant monitor, R-24, was immediately tested satisfactorily. On October 10, 1987, when R-24 was to be given its daily retest with R-23 still out of service, the "Operate-Reset" switch was found to be in the "Reset" position thus disabling the monitor. The switch was immediately returned to "Operate". A subsequent "bugging" test of R-23 witnessed by the resident inspector showed R-23 to be operable and capable of performing its safety function. No violation of Technical Specification requirements seems to have occurred.

On October 19, 1987, with both units at 100% power, preventive maintenance testing of component cooling water (CCW) motor operated valve MV-32121 was being performed. As a result of improper isolation of MV-32121, an unplanned start of the idle motor driven CCW pump No. 12 occurred on a system low pressure signal. The "bugging" technique was faulty and corrective action has been taken to prevent this from reoccurring by changing the test procedure.

On October 28, 1987, with both Unit 1 and Unit 2 at 100% power, the automatic transfer capabilities of safeguards bus No. 15 was lost when a ten amp fuse blew in the 125 volt DC control power circuit. The event occurred when an electrical maintenance technician shorted a 125 volt DC wire associated with the frequency relay for the No. 1 emergency diesel generator. The emergency diesel generator had been removed from service to perform a preventive maintenance inspection. The control circuit fuse was replaced and the bus transfer circuit returned to operable condition within 13 minutes. Technical Specifications Paragraph 3.7.B.3 states in part that "one 4KV bus . . . may be out of service on each unit for a period not to exceed eight hours provided . . . both diesel generators are operable, and both paths from the grid to the 4KV bus are operable." This is a technical specification violation since Bus 15 voltage restoration was inoperable and therefore Bus 15 was declared inoperable for 13 minutes with No. 1 emergency diesel generator also out of service. See Notice of Violation (282/87016-01(DRP)).

On October 28, 1987 with both Unit 1 and Unit 2 at 100% power, the rad waste building vent gas monitor (R-35) pump failed. Failure of the monitor was identified by plant shift personnel; however, the corrective action required by plant procedure (i.e., shut off ventilation system immediately) was not taken for six hours. This is a violation of Technical Specification Paragraph 6.5 (282/87016-02(DRP)). Corrective action has been taken and this violation meets the tests of 10 CFR 2, Appendix C, Section V.A.; consequently, no Notice of Violation will be issued, and this matter is considered closed.

On November 10, 1987, with Unit 1 returning to full power after a reduction to 50% power for routine surveillances, the Unit 1 computer failed. This computer provides a means of monitoring plant processes and major components and the plant operations manual requires the hourly logging of specific plant parameters by the operators should the computer fail. Due to a misunderstanding, the values for reactor flux deviation were not recorded for over seven hours by the control room operators as required by the plant operations manual and of plant technical specifications Paragraph 3.10.8.9. The misunderstanding arose between the individual making the log entries (an operator trainee) and the licensed operator and resulted in making log entries for NIS power in lieu of reactor flux deviation. This is a violation of Technical Specifications Paragraph 3.10.B.9 (282/87016-03(DRP)). Corrective action was taken immediately to correct the problem and this violation meets the tests of 10 CFR 2, Appendix C, Section V.A; consequently, no Notice of Violation will be issued, and this matter is considered closed.

4. Maintenance Observation (62703)

Routine, preventive, and corrective maintenance activities (on safety-related systems and components) listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, and industry codes or standards, and in

conformance with Technical Specifications. The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service, approvals were obtained prior to initiating the work, activities were accomplished using approved procedures and were inspected as applicable, functional testing and/or calibrations were performed prior to returning components or systems to service, quality control records were maintained, activities were accomplished by qualified personnel, radiological controls were implemented, and fire prevention controls were implemented.

Portions of the following maintenance activities were observed/reviewed during the inspection period:

- Preventive Maintenance of No. 1 Emergency Diesel Generator
- Flush Fire Hydrant System (During this work, the dead legs connecting the cooling water system to the Fire Protection System were also flushed)
- Spent Fuel Pool Special Filter Changeout
- Repair Spent Fuel Pool Crane
- Replace cooling water Barton Gage flow switches

No violations or deviations were identified.

5. Surveillance (61726)

The inspector witnessed portions of surveillance testing of safety-related systems and components. The inspection included verifying that the tests were scheduled and performed within Technical Specification requirements, observing that procedures were being followed by qualified operators, that Limiting Conditions for Operation (LCOs) were not violated, that system and equipment restoration was completed, and that test results were acceptable to test and Technical Specification requirements.

Portions of the following surveillances were observed/reviewed during the inspection period:

- SP 1090 Containment Spray Test
- SP 1703 Plant Portable Radio Monthly Test
- SP 1110 Cooling Water System Isolation Valves Test
- SP 1728 Siren Cancel Test

On August 21, 1987, with both units at 100% power, a routine monthly surveillance (SP 2004, nuclear power range axial offset calibration check) was performed for Unit 1. Results of this surveillance indicated that a second two part surveillance of instrument calibration was necessary (SP 2006A, nuclear power range axial offset calibration and SP 2006B, NIS power range axial offset calibration). Due to an apparent miscommunication, the results of the SP 2006A surveillance were not forwarded by nuclear engineering to I&C for them to complete SP 2006B. This failure to complete an administratively required surveillance is a violation of 10 CFR 50, Appendix B which states in part that "Activities affecting quality shall be prescribed by documented instructions, procedures, . . . and shall be accomplished in accordance with these instructions, procedures. . ." (282/87016-04(DRP)). Corrective action was taken immediately and this violation meets the tests of 10 CFR 2 Appendix C, Section V.A.; consequently, no Notice of Violation will be issued, and this matter is considered closed.

6. ESF System Walkdown (71710)

The inspector performed a complete walkdown of the accessible portions of Unit 1 and Unit 2 caustic addition and containment spray systems. Observations included confirmation of selected portions of the licensee's procedures, checklists, plant drawings, verification of correct valve and power supply breaker positions to insure that plant equipment and instrumentation are properly aligned, and local system indication to insure proper operation within prescribed limits.

No violations or deviations were identified.

7. Spent Fuel Pool Activities (86700)

As previously noted in Inspection Reports 282/87014(DRP) and 306/87013(DRP), the fuel rod consolidation demonstration program was ready to proceed after NRR had resolved the 10 CFR 50.59 issue on October 8, 1987. The first several fuel assemblies to be consolidated proceeded more slowly than projected (approximately one fuel assembly per day; two ten hour shifts) but as experience was gained and procedural refinements were made, the fuel assembly consolidation rate reached just over two assemblies per day.

A total of 36 fuel assemblies were successfully consolidated between October 9 and November 13 and included typical examples of "bowed" and "bulge joint" assemblies that required the use of the special thimble grip tool. Of the 6,444 fuel rods consolidated, only one was bent during the removal phase and was set aside in a special storage canister.

On October 28, 1987 and again on November 9, 1987, NRR representatives inspected fuel rod consolidation activities which were in progress on those dates. A representative of the International Atomic Energy Agency (IAEA) also observed the activities.

On October 29, 1987, the Senior Resident Inspector for Prairie Island and the NRR Project Manager visited State Representative Paul Ogren in St. Paul to discuss the regulatory aspects of fuel rod consolidation. Also present during the meeting were State Representative Karen Clark, J. Campbell of Prairie Island Community Council and R. Anderson and B. Anderson of Minnesota Institute of Concern for Public Health.

No violations or deviations were identified.

8. Licensee Event Reports (92700)

The following event reports and Part 21s were added during this report period.

(Open)	282/87017-LL	Clamshells Found in Diesel Generator Alternate Cooling Water Lines
(Open)	282/87018-LL	Bus 15 Inoperable With Emergency Diesel Generator No. 1 Out of Service
(Open)	282/87019-LL	Failure to Log Delta I With Computer Inoperable
(Open)	282/87016-06-PP	Anchor/Darling Valve Co.; Check Valves With Missing Lock Welds On Hinge Supports Or Hinge Support Capscrews - Part 21 Followup
(Open)	306/87015-01-PP	Anchor/Darling Valve Co.; Check Valves With Missing Lock Welds on Hinge Supports Or Hinge Support Capscrews - Part 21 Followup

9. Modifications (37700)

On October 19, 1987, craft personnel were removing an electrical cable in the auxiliary building that had been previously isolated and determined as part of a modification package to the safety injection (SI) system. The written procedure for this work requires that cable cuts have QC hold points. Because of the cable lengths involved, intermediate cuts are normally made to facilitate removal. However, the QC and craft personnel working on this job had agreed that intermediate cable cuts need not have QC hold points.

After making an intermediate cable cut, craft personnel discovered that the wrong cable had been cut. Cause of this error was a failure to follow written procedures and is a violation of 10 CFR 50 Appendix B, Criterion V which states in part that "Activities affecting quality shall be prescribed by documented instructions, procedures, . . . and shall be accomplished in accordance with these instructions, procedures, . . ."

See Notice of Violation (282/87016-05(DRP)).

10. Training

During the weeks of November 2 and November 9, 1987, written, oral and simulator examinations were administered to Senior Reactor Operator candidates. During the administration of the oral examinations, the examiners noted a disparity between the way the training personnel and candidates escorted examiners (visitors) and the requirement for escorting visitors as contained in Procedure 5AWI 5.1.1, Revision 0, entitled "Security Policies and Procedures," Step 6.2.8. The procedure requires the escort to use his badge to open the Vital Area door, and then let the visitor place his badge into the card reader and enter the Vital Area while the escort is holding the door open. Contrary to this requirement, the escorts were allowing the visitors to badge in first, then place their badge into the card reader and enter the Vital Area. Licensee management indicated during a November 6, 1987 exit interview, that the SRO candidates had been trained only the previous week on escort responsibilities, and that this training resulted in their violation of this procedure. Failure of the licensee to follow their own procedures is considered a violation of Technical Specification No. 6.5 Subpart F, which requires that Security Procedures be prepared and followed. (282/87016-06(DRP); 306/87015-01(DRP))

11. Meeting with Corporate Management (30702)

On October 29, 1987 the Senior Resident Inspector met with NSP officials identified in Paragraph 1 at the corporate offices in Minneapolis. The following subjects were discussed:

- a. Fuel rod consolidation demonstration
- b. NIS calibration inaccuracies
- c. Operational QA efforts
- d. Operator requalification testing
- e. Cut cable incident

12. Exit (30703)

The inspectors met with the licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on November 16, 1987. The inspectors discussed the purpose and scope of the inspection and the findings. The inspectors also discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any document/processes as proprietary.