

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-282/91027(DRP); 50-306/91027(DRP)

Docket Nos. 50-282; 50-306

License Nos. DPR-42; DPR-60

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

Facility Name: Prairie Island Nuclear Generating Plant

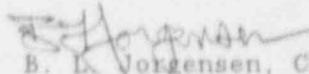
Inspection At: Prairie Island Site, Red Wing, MN

Inspection Conducted: December 24, 1991 through February 17, 1992

Inspectors: D. C. Kosloff

M. L. Dapas

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Approved By: 
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Reactor Projects Section 2A

3-10-92
Date

Inspection Summary

Inspection on December 24, 1991 through February 17, 1992 (Reports No. 50-282/91027(DRP); 50-306/91027(DRP))

Areas Inspected: Routine unannounced inspection by resident and regional inspectors of plant operational safety, maintenance, surveillance, licensee event report followup, decay heat removal during outages, engineered safety system walkdown, and preparations for refueling.

Results:

No violations of NRC requirements were identified in six of the seven areas inspected. One non-cited violation (fire door held open without fire watch) was identified in the area of licensee event report followup. One unresolved item was identified in the maintenance area.

Operations

No new strengths or weaknesses were identified. Operator knowledge and coordination were excellent in response to operating transients (paragraphs 2.b and 4). Operational control of plant activities was generally good; however, a fire door was left open (paragraph 5) and a security barrier was breached without operator knowledge (paragraph 3). A personnel error occurred during a surveillance procedure (paragraph 4). Operator response was excellent when a fire watch reported that vapor was escaping from the new diesel fuel oil storage vault (paragraph 2.b)

Maintenance and Surveillance

No new strengths or weaknesses were identified. Personnel errors occurred during the performance of surveillance SP 1003 (paragraph 4) and during maintenance on a feedwater regulating valve control system (paragraph 3). Cleanup after work was incomplete or slow in some cases (paragraph 3).

Engineering and Technical Support

No new strengths or weaknesses were identified. Inadequate engineering review allowed a breach in a security barrier (paragraph 3). A cooling water pump did not start due to failure of a relay that had not been previously considered for preventive maintenance (paragraph 4). Response to identified issues was adequate.

Emergency Preparedness

No new strengths or weaknesses were identified. The licensee completed upgrades of the Operations Support Center and the Emergency Operations Facility.

Security

No new strengths or weaknesses were identified. Alert security personnel identified a hidden breach in a security barrier and quickly established compensatory measures (paragraph 3).

Safety Assessment/Quality Verification

No new strengths or weaknesses were identified. Poor licensee control of plant engineering activities allowed a breach in a security barrier (paragraph 3). Management response to identified problems was excellent.

Radiation Protection

No new strengths or weaknesses were identified.

DETAILS

1. Persons Contacted

E. Watzl, General Manager, Prairie Island
#M. Sellman, Plant Manager
K. Albrecht, General Superintendent, Engineering and Radiation Protection
M. Wadley, General Superintendent, Operations
G. Lenertz, General Superintendent, Maintenance
#R. Lindsey, Assistant to the Plant Manager
D. Schuelke, Superintendent, Radiation Protection
G. Miller, Superintendent, Technical Support
M. Reddemann, General Superintendent, Electrical and Instrumentation Systems
T. Breene, Superintendent, Nuclear Engineering
#M. Klee, Superintendent, Quality Engineering
R. Conklin, Supervisor, Security and Services
E. Eckholt, Nuclear Support Services
J. Leveille, Nuclear Support Services
A. Hunstad, Staff Engineer
J. Hill, Superintendent, Instrumentation and Controls Systems
#J. Maki, Superintendent, Electrical Systems
#D. Kosloff, Senior Resident Inspector, NRC

#Denotes those present at the management interview of February 12, 1991.

2. Operational Safety Verification (71707, 92701, 40500)

a. Operational Safety Verification (71707)

Unit 1 operated at full power throughout the inspection period except for a brief power reduction for turbine valve testing. Unit 2 operated at full power until January 13, 1992, when the unit began coasting down for a refueling outage.

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, conducted tours of the auxiliary building, turbine building and external areas of the plant to observe plant equipment conditions, including potential fire hazards, and to verify that maintenance work requests had been initiated for the equipment in need of repairs.

b. Onsite Followup of Events (92701, 93702)

On January 14, 1992, at 2:26 a.m. the roving fire watch for the new emergency diesel building (under construction) observed a water vapor plume escaping from the new diesel fuel oil underground storage vault. The fire watch notified the control room and the onsite fire brigade responded. The fire brigade could not quickly determine whether the plume was water vapor or smoke and the Red Wing Fire Department was called for assistance. While the Fire Department was responding, fire brigade personnel determined that the plume was water vapor that formed when moist warm air exhausted from the vault came in contact with the cold outside air.

On February 6, 1992, a feedwater transient occurred on Unit 2 when an Instrument and Control (I & C) technician connected a counting instrument to the wrong test points in the feedwater control system. The operators were aware of the technician's activities and prepared for possible abnormal feedwater system operation. The technician's error caused one feedwater control valve to open fully. The operators promptly returned the plant to normal operating conditions. See paragraph 3 for more information.

No violations, deviations, unresolved items or open items were identified.

3. Maintenance Observation (71707, 62703, 92701, 40500)

Routine, preventive, and corrective maintenance activities were observed or reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, industry codes or standards, and in conformance with Technical Specifications. The following items were considered during this review: adherence to Limiting Conditions for Operation 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 during the inspection period:

- Replacement of Unit 1 shield building boot seal for auxiliary feedwater piping penetration (46B). After the work was complete the inspector observed that cleanup of the work area was not promptly completed. The inspector discussed this example of poor work cleanup with the plant manager along with the other examples discussed below. The licensee's plans to improve housekeeping appear adequate.

- Painting of floor opening covers in the safety-related screenhouse structure. After the work was complete the inspector observed that removal of temporary wooden (fire-retardant treated) floor opening covers was not prompt.
- Retubing of condenser for #121 control room chiller. After the work was complete the inspector observed that cleanup of excess flammable pipe insulation was not prompt.
- Retubing of condenser for #122 control room chiller. After the work was complete the inspector observed that cleanup of excess flammable pipe insulation was not prompt.
- Cleaning and inspection of #12 cooling water strainer.
- Installation of new pressure gauge for #121 cooling water pump.
- Repair of fuel handling crane.
- Installation of cable trays for new emergency diesel generator. The engineer who prepared the work instructions for this task apparently did not consider effects the work might have on plant security. While work was stopped for the weekend of January 25, 1992, a security guard discovered a security breach caused by the work. The inspector verified that compensatory actions had been promptly initiated and discussed the situation with Region III security specialists. This is an unresolved item (50-306/91027-01) pending completion of review by Region III security specialists.
- Shortening of drain line for #22 turbine-driven auxiliary feedwater pump governor cooler.
- Restoration of operation of #12 motor-driven auxiliary feedwater pump bearing oil slinger ring. This work was done after the slinger ring was observed to be sluggish during a surveillance test. The licensee changed the oil and the slinger ring worked normally. The inspector will review the licensee's analysis of this maintenance in a future inspection.

The inspector also observed the licensee's activities to improve maintenance work controls. Additional training has been provided to maintenance personnel on the importance of detailed formal work control. The inspector verified that additional training is planned for personnel that interact with maintenance personnel.

One unresolved item was identified. No other violations, deviations, unresolved items or open items were identified.

4. Surveillance (61726, 71707, 92701, 40500)

The inspector reviewed Technical Specifications required surveillance testing as described below and verified that testing was performed in accordance with adequate procedures. Additionally, test instrumentation was calibrated, Limiting Conditions for Operation were met, removal and restoration of the affected components were properly accomplished, and test results conformed with Technical Specifications and procedure requirements. The results were reviewed by personnel other than the individual directing the test and deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

Portions of the following test activities were observed or reviewed:

- SP 2102 22 Turbine-Driven Auxiliary Feedwater Pump Test.
- SP 1003 Analog Protection Functional Test.

On February 3, a control room operator failed to return the Unit 1 steam dump controls to automatic control. The operator signed off the step in the procedure but was distracted from completion of the step by operational problems with a reactor coolant system charging pump. The error was not detected and corrected until a later step in the test procedure was performed the following day. The abnormal position of the switch was not observed during normal operation or shift turnover. The licensee's Error Reduction Task Force (ERTF) began evaluation of these errors and the inspector will review the ERTF evaluation when it is completed.

On February 3, an I&C technician performing this Unit 1 test missed part of a multi-action step, the return of the Resistance Temperature Detector (RTD) State Block Switches to normal. The technician discovered his error several steps later through a verification step for the RTD State Block Switches. The technician then closed the switches. This caused a spike in the Tave control signal which caused Bank D control rods to step in nine steps. The operators observed this condition and restored the plant to normal operation. The I&C technicians verified that the Analog Protection System was in an appropriate configuration to resume testing. The inspector verified that a procedure revision request was submitted to add a separate step for the restoration of the RTD State Block Switches and to place the verification step in a more appropriate location in the procedure. The licensee also counseled all personnel who had an opportunity to prevent the event and began an Error Reduction Task Force review.

SP 1106B #22 Diesel Driven Cooling Water Pump Monthly Run.

Quarterly, when this test is done, the licensee tests the low cooling water pressure start function. The pump failed to start on low pressure. The licensee determined that a sticking electric relay caused the failure. The licensee found that this relay was not included in its preventive maintenance (PM) program and that no spares were available. The licensee cleaned the relay and it functioned correctly. The licensee added the relay and a similar relay for the #21 Diesel Driven Cooling Water Pump to its PM program and began a search for a suitable replacement for the relay. The inspector will review the adequacy of the frequency of the low pressure test in a future inspection.

SP 1100 12 Motor Driven Auxiliary Feedwater Pump Monthly Run.

SP 1074 Auxiliary Building Special Ventilation System Functional Test.

No violations, deviations, unresolved or open items were identified.

5. Licensee Event Report Followup (92700)

(Closed) Licensee Event Report 50-282/92001-LL: Fire Door Left Open as Result of Personnel Error.

On January 17, 1992, at about 3:20 p.m. the inspector observed Fire Door No. 169 between Safeguards Bus Rooms 25 and 16 open with no fire watch present. The inspector notified the control room and an operator, dispatched to investigate, closed the door. The door had not been blocked open, and the doorway was not obstructed. The door had been held open by a detent in the automatic door closer mechanism.

The door closer was equipped with a fusible link intended to provide automatic closure in a fire. Testing showed that with the fusible link removed, the door would not close, but was still held open by its detent. Fire Door No. 169 was inoperable when held in the open position by the detent. There was a person performing quality inspections in the room at the time the door was found open, but he had not been designated as a fire watch. Since no fire watch was present with the fire door open, Technical Specification 3.14.G was violated. Fire detection was operable in both rooms and although there was no fire watch in the room there were personnel in the room throughout the day, which minimized the possibility of an undetected fire.

The licensee accomplished or is developing the following corrective actions:

All non-alarmed fire doors were inspected for the presence of detents on door closers. Three detents were found and removed. The inspector inspected two of the doors to verify that the detents had been removed.

- More detailed discussion of fire doors will be included in General Employee Training.
- The licensee will investigate monitoring fire doors using the security operating system. Currently, many doors are equipped with required hardware, but are not included in software for monitoring. Software programs may be revised to allow monitoring of these doors. The fire door would alarm after being open for a pre-set time to prevent nuisance alarms. The inspector will review the results of the licensee's investigation.
- On January 21, 1992, construction craft management met with all Kask electricians to discuss the impact of leaving fire doors open. Kask is the contractor who had personnel working in the rooms the day the fire door was found open. The door was clearly marked as a fire door. Also discussed were other practices relevant to work in a nuclear plant. The inspector reviewed the training documents. The inspector also performed additional inspections of areas where Kask personnel were working. No other problems were observed.

The failure to adhere to TS 3.14.G had minimal safety significance. It was classified as a Severity Level V violation. The violation is not being cited because the criteria specified in Section V.A. of the NRC Enforcement Policy were satisfied.

On non-cited violation was identified. No other violations, deviations, unresolved or open items were identified.

6. Reliable Decay Heat Removal During Outages (TI 2515/113)

The inspector attended the licensee's second pre-outage meeting for the Unit 2 refueling outage scheduled for February and March of 1992. The inspector verified that planning included consideration of activities related to reliable decay heat removal (DHR) and that plant management emphasized the importance of maintaining DHR. The inspector verified that procedures to be used for reduced reactor coolant inventory operations had been recently reviewed by the licensee's onsite review committee. The inspector verified that quality assurance (QA) personnel had considered the importance of maintaining reliable DHR in planning outage QA activities.

The inspector, on separate occasions, discussed events at other plants which involved crane interference with offsite electric power lines. The inspector verified that the licensee had established a program to control the use of equipment that could interfere with offsite power.

No violations, deviations, unresolved or open items were identified.

7. Engineering Safeguard Features (ESF) System Walkdown and System Focus (71710, 61626, 62703)

The inspector performed a walkdown of the Auxiliary Feedwater System and observations included confirmation of selected portions of the licensee's procedures and checklists, verification of correct valve and power supply breaker positions to insure that plant equipment and instrumentation were properly aligned, and local and remote system indication to insure proper operation within prescribed limits. A few minor discrepancies were noted between the procedures and equipment. Additionally, equipment in need of minor repair was identified. These matters were discussed with the licensee and corrective action was in progress or complete by the end of the inspection period. The inspector used a draft "Risk-Based Inspection Guide," provided by the Office of Nuclear Reactor Regulation, as an aid.

No violations, deviations, unresolved or open items were identified.

8. Preparation for Refueling (40500, 60705)

The inspector reviewed licensee procedures for refueling activities and observed inspection and handling of new fuel.

No violations, deviations, unresolved or open items were identified.

9. Meetings with Local Public Officials (94600)

Four councilmen from the city of Prescott, Wisconsin, toured the plant on February 9, 1992. After their tour the inspector met with them, discussed NRC activities and answered questions they had about NRC activities.

10. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. An unresolved item is discussed in Paragraph 3.

11. Management Interview (71707)

The inspector met with the licensee representatives denoted in paragraph 1 near the conclusion of the report period on February 12, 1992. The inspector discussed the purpose and scope of the inspection and the findings. The inspector 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 documents or processes as proprietary.