

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-282/83-04(DPRP); 50-306/83-03(DPRP)

Docket No. 50-282; 50-306

License 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, MN

Inspection Conducted: January 1 through February 15, 1983

Inspectors: *for* C. D. Feierabend *for* *I. N. Jackiw*

3-17-83

for D. L. Williams *for* *I. N. Jackiw*

3-17-83

Approved By: *I. N. Jackiw*
I. N. Jackiw, Chief
Reactor Projects Section 2C

3-17-83

Inspection Summary

Inspection on January 1 through February 15, 1983 (Report No. 50-282/83-04(DPRP); 50-306/83-03(DPRP))

Areas Inspected: Routine resident inspection of previous inspection findings; plant operational safety; maintenance; surveillance; reactor trip; and followup of licensee event reports. The inspection involved a total of 140 inspector-hours onsite by 2 NRC inspectors including 23 inspector-hours onsite during off-shifts.

Results: No items of noncompliance were identified.

DETAILS

1. Personnel Contacted

*E. Watzl, Plant Manager
D. Mendele, Plant Superintendent, Engineering and Radiation Protection
R. Lindsey, Plant Superintendent, Operations and Maintenance
G. Miller, Superintendent, Operations Engineer
A. Hunstad, Staff Engineer
A. Smith, Senior Scheduling Engineer
M. Balk, Superintendent, Operations
D. Schuelke, Superintendent, Radiation Protection
J. Nelson, Superintendent, Maintenance
J. Hoffman, Superintendent, Technical Engineering
M. Klee, Superintendent, Nuclear Engineering
K. Albrecht, Superintendent, Quality Engineering
G. Lenertz, Lead Production Engineer
B. Stephens, Lead Production Engineer
R. Frazier, Engineer
M. Anderson, Engineer
K. Beadell, Engineer

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (282/80-09-01; 306/80-10-01(DPRP)): The inspector confirmed that the licensee's corrective actions had been completed. This included verification that the licensee's system drawings had been revised and distributed in accordance with the licensee's drawing control procedures.

3. Operations Safety Verification

a. General Observations

Unit 2 operated at power throughout the inspection period. Unit 1 was tripped during safeguards logic testing on January 13, 1983, and returned to power operation the same day. Unit 1 was shut down on January 21, 1983, to repair safety injection supply line from the boric acid storage tanks. The repairs were completed and the plant returned to power on February 12, 1983.

b. Control Room Observations

The inspector observed control room operations, reviewed applicable logs, conducted discussions with control room operators, and observed shift turnovers. The inspector verified the operability of selected emergency systems, reviewed equipment control records, and verified the proper return to service of affected components. This included observation of portions of surveillance

testing of containment fan coil units. The inspectors observed shutdown of Unit 1 in preparation for examination of the boric acid piping and portions of the preparations for startup after repairs were complete.

c. Tours

Tours of the screenhouse, auxiliary and turbine buildings and external areas 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. The inspector observed shutdown of Unit 1 for examination of the boric acid piping and preparations for restart after repairs were completed.

d. Independent Verification

The inspector performed a walkdown of the accessible portions of the Diesel Generator, Auxiliary Feedwater, Safety Injection, Reactor Heat Removal and Containment Spray Systems. Observations included confirmation of selected portions of the licensee's procedures, checklists, and plant drawings and verification of correct valve and power supply breaker positions to ensure that plant equipment and instrumentation were properly aligned.

4. Maintenance

The inspector reviewed maintenance procedures, observed maintenance in progress, observed quality assurance and radiation protection activities and reviewed maintenance records for several inspection, repair and design-change activities.

a. STP-PM-3124 Preventive Maintenance of RHR Pumps and Power Supplies

The inspector reviewed the procedure and observed portions of the work in progress. This included electrical testing of the power supply for a pump motor.

b. Boric Acid Pipe Inspection and Repairs

The inspectors observed portions of licensee activities related to removal of insulation, preparations for visual and NDE inspections, UT examinations in progress, replacement of heat tracing and restoration of systems to service.

5. Surveillance Observation

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 LCOs were not violated, that system and equipment restoration was completed, and that test results were acceptable to test and Technical Specification requirements.

- a. SP-1524 122 Diesel Fire Pump Weekly Test
- b. SP-1113 Annual Steam Exclusion Damper Inspection
- c. SP-1116 Monthly Power Distribution Map
- d. SP-2091 Containment Fan Coil Unit Surveillance Test
- e. SP-1028 Radiation Monitoring Monthly Functional Test

All test results were satisfactory. No items of noncompliance were identified.

6. Reactor Trip

Prairie Island Unit 1 tripped from 100% power on January 13, 1983, at 0757. The trip occurred while performing SP-1032, Safeguards Logic Test, when a technician failed to place a switch in the test position before generating a test signal to the safeguards logic. All systems responded as expected. No actual safety injection occurred.

The licensee notified the NRC in accordance with 10 CFR 50.72. All parameters were returned to normal by 0815. The inspector observed licensee actions to recover from the trip and return to power operation. The plant was back on line at 1648 the same day.

7. Licensee Events Report Followup

The inspector reviewed the following event reports to determine that reportability requirements were fulfilled and that corrective actions were accomplished to prevent recurrence. The review included verification that the reports accurately describe the event, that the licensee conducted required investigations and management reviews and that continued operation was not in violation of regulatory requirements.

- a. (Closed) P-RO-82-11 Inoperability of 12 Auxiliary Feedwater Pump

The inspector had previously conducted a preliminary review of the event. The inspector confirmed that the licensee's preventive maintenance procedure PM-3133-1 had been revised to include the appropriate instructions for installing the lube oil filter.

- b. (Closed) P-RO-82-18 Missed Surveillance Tests SP-1184 and SP-1185, Spent Fuel Pool Vent Flow Verification and Control Room Special Vent Flow Verification

The licensee has revised the surveillance test schedule as described to prevent recurrence.

- c. (Closed) P-RO-82-19 Failure of 22 Diesel Cooling Water Pump to Start After Maintenance

The inspector reviewed test records and discussed the event with operators and the cognizant engineer for the system. The failure to start could not be duplicated and has not recurred during monthly surveillance testing.

- d. (Closed) P-RO-82-23 One Containment Pressure Sensing Line Found Capped

This event was described in a previous inspection report.¹ Corrective actions are complete.

- e. (Closed) P-RO-82-28 Unit 1 Operation Outside the Flux Difference Target Band

The inspector reviewed the event and discussed causes and corrective actions with plant management. The technical aspects of the event did not indicate any safety concerns as the deviation from the target band was less than 0.01% and a flux map completed on the same day specified a new target that indicated that the flux difference would have been well within the new target band.

In addition to requiring review of the LER by operators, licensee management has discussed the issue with shift supervisors and has periodically monitored operator responses to computer alarms.

- f. (Open) P-RO-82-29 Leak in Piping Containing 12% Boric Acid Solution

The inspectors observed licensee's initial inspections and repairs following discovery of boric acid accumulation on a supply pipe for the safety injection system. The inspectors attended the Operations Committee (OC) meeting when the boric acid leak was discussed and recommendations for corrective actions were evaluated. The licensee initiated nondestructive examination utilizing ultrasonic testing (UT), liquid penetrant (PT) examination and visual examination to determine the condition of the low-pressure piping.

When additional indications were identified by UT, the licensee elected to shut down the unit, take the boric acid line out of service and remove a section of the pipe for destructive testing. The testing confirmed that the UT indications were associated with stress corrosion. The licensee met with NRR, IE and RIII representatives at NRR on February 8, 1983, to describe the

¹ IE Inspection Report No. 282/82-20(DPRP)

testing and repair program. A RIII inspector observed portions of the licensee's testing and repairs in progress, attended the meeting in the NRR office and will document the results in a separate report.

The inspectors observed portions of the licensee's preparations for Unit 1 startup after repairs were completed.

The licensee has initiated inspection of the Unit 2 boric acid piping to determine whether similar conditions exist. Examinations are in progress with preliminary data indicating that there is no significant problem in Unit 2.

g. (Open) P-RO-83-01 Error Discovered in LOCA Analysis by EXXON

On February 4, 1983, EXXON Nuclear Company, Inc. (EXXON) notified the licensee that a minor error had been discovered in the input to one of the codes used in the ECCS analysis for Prairie Island for the current reactor cores, utilizing the ENC TOPROD fuel. The licensee notified the SRI and RIII and immediately reviewed the flux maps to assure that peaking factors were within limits. Initial review showed that Unit 2 was within limits and that Unit 1 would probably slightly exceed linear heat generation limits at 100% power. As Unit 1 was shut down for boric acid pipe repairs, no problem existed at the time notification was received.

The licensee utilized the corrected analysis for startup of Unit 1 and has limited power to 98% of design and plans to remain at this level until subsequent flux maps indicate sufficient margin. No items of noncompliance were identified.

8. Exit Interviews

The inspectors attended an exit interview conducted by RIII Inspectors J. P. Patterson on February 4, 1983 and W. Key on February 8, 1983.

The inspectors conducted interim interviews during the inspection and met with Mr. Watzl at the conclusion of the inspection. The inspectors discussed the scope and results of the inspection and stated that no items of noncompliance had been identified.