U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No: 50-282/82-08; 50-306/82-08(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 55066

Inspection Conducted: May 1-31, 1982

Inspectors:

C. D. Feierabend 6/2/82

for B. L. Burgess 6/2/82

Approved By:

L. Reyes, Chief 6/9/82
Reactor Projects Section 2C

Inspection Summary

Inspection on May 1-31, 1982 (Report No. 50-282/82-08; 50-306/82-08)(DPRP)
Areas Inspected: Routine resident inspection of plant operation, maintenance, surveillance, security, radiation protection, procurement, preparation for refueling, followup on IE Bulletins, followup on operating events, and followup on event reports. The inspection involved a total of 153 inspector hours onsite by 2 NRC inspectors including 21 inspector hours onsite during off-shifts.
Results: No items of noncompliance were identified.

DETAILS

1. Personnel Contacted

F. Tierney, Plant Manager
J. Brokaw, Plant Superintendent, Operations and Maintenance
E. Watzl, Plant Superintendent, Plant Engineering and Radiation Protection
R. Warren, Office Manager
L. Brunner, Purchasing and Inventory Control Supervisor
A. Hunstad, Staff Engineer
R. Lindsey, Superintendent, Operations
J. Nelson, Superintendent, Maintenance
J. Hoffman, Superintendent, Technical Engineering
M. Klee, Superintendent, Nuclear Engineering
G. Lenertz, Engineer
G. Miller, Engineer
R. Held, Shift Supervisor
D. Cragoe, Shift Supervisor
G. Edon, Shift Supervisor
M. Balk, Shift Supervisor
T. Goetsch, Shift Supervisor
R. Holthe, Shift Supervisor
D. Walker, Shift Supervisor
P. Valtakis, Shift Supervisor

2. Organization and Administration

The inspector was informed of a change in the licensee's corporate management. Mr. L. O. Mayer, Manager of Nuclear Support Services has recently retired. The licensee has designated[1/] Mr. D. M. Musolf to assume the licensing administration responsibilities previously assigned to Mr. Mayer.

3. Operations Safety Verification

a. General

Both units operated routinely, with periodic load-following during periods when hydroelectric power was readily available.

Unit 2 was shut down on May 2 to repair an electrical component in the control rod drive system. The unit was back on line May 3.

b. Control Room Observations

The inspector observed control room operation, 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.

1/ NSP Letter to NRR, Subject: Filings Under Oath or Affirmation by Applicant, dated May 19, 1982.

c. Tours

Tours of the 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.

No items of noncompliance were identified.

4. Surveillance

The inspectors witness portions of surveillance testing of safety related systems and components. This included inspection of Unit 2 containment during power operation and verification of testing the sump "A", sump "B", and sump "C" level alarms.

No items of noncompliance were identified.

5. IE Bulletins

a. IEB No.82-01 and Rev.1 — Alteration of Radiographs of Welds in Piping Subassemblies.

Not applicable to this facility. (Closed)

6. Licensee Event Reports Followup

The inspector reviewed the following event reports to determine that reportability requirements were fulfilled and that corrective actions were accomplished to prevent recurrence.

a. P-RO-81-09 — Unit 1 Operation with One Offsite Source of Power.

The inspector verified that Design Change No.81L657 has been completed to modify cooling tower bus logic. (Closed)

b. P-RO-81-16 — Inoperability of No.22 Diesel Cooling Water Pump.

The inspector discussed the event with licensee technical staff. In addition to the corrective action completed, the licensee has initiated a design change to add an alarm to monitor control power for the diesel cooling water pumps. (Closed)

c. P-RO-81-14 — Not used.[2/] (Closed)

d. P-RO-81-21 — Not used.[3/] (Closed)

2/ NSP Letter to RIII, Reportable Occurrence No.P-RO-81-14, dated Oct. 6, 1981.
3/ NSP Letter to RIII, Reportable Occurrence No.P-RO-81-21, dated Oct. 25, 1981.

e. P-RO-81-24 Breaker for Heat Trace Rack No.1 Found Tripped. (Closed)

f. P-RO-81-25 Containment Purge Supply Valves Failed Local Leak Rate Test.

New valve seats had been installed during the March 1981 refueling outage. Leak testing after installation was satisfactory. The licensee has elected to test these valves after usage, prior to restart of the plant. The valves remain locked closed during power operation. (Closed)

g. P-RO-81-31 Spent Fuel Assembly D-34 Top Nozzle Event.

The licensee forwarded a report to update initial information on May 12, 1982. The fuel vendor has identified the apparent cause as intergranular stress corrosion. The licensee has taken precautions to minimize possibility of recurrence during fuel handling operations. (Closed)

h. P-RO-82-07 Not used. (See Paragraph 8a.) (Closed)

No items of noncompliance were identified.

7. Procurement

The inspector reviewed the licensee's procedures governing the procurement of safety related material and spare parts. Various procurement documents were reviewed to verify technical requirements were met, that Quality Assurance program requirements were addressed and that safety related procurements were properly documented in accordance with applicable requirements.

The inspector observed receipt inspections performed by qualified warehousemen. In addition, the inspector held discussions with warehousemen and Quality Control personnel to insure that nonconforming items were identified for resolution prior to release for issue, that items having limited shelf life were periodically checked for expiration status and that preventive maintenance was accomplished when required.

During the inspection, the inspector noted that much of the nonsafety related stock identified in an earlier inspection[4/] had been removed to an offsite storage area. However, in Warehouse C the bulk of items stored exceeded available storage space and precluded achieving good warehouse storage practices.

4/ IE Inspection Report No. 50-282/81-01; 50-306/81-01.

The inspector held discussions with cognizant licensee personnel to determine what actions were in progress to rectify the warehouse storage problems. The licensee stated that efforts are in progress to expand present onsite warehouse storage area. Construction of an additional warehouse has been included in facility planning. The licensee had identified this as requiring expedited action and expects construction to begin this fall.

No items of noncompliance were identified.

8. Operating Events

a. Control Rod Drive Power Supply Failure

On Saturday, May 1, 1982, at approximately 1702, the inspector was notified by the Unit 2 duty Shift Supervisor (SS), of a rod control system problem. Power Control Cabinet 1BD had received an urgent failure alarm, indicating inability to drive several control rods. The SS had reviewed Technical Specifications (TS) and had notified the Operations Committee. The Operations Committee poll determined that all rods were operable.

On Sunday, May 2, 1982, the inspector was notified at 1220 by the Shift Emergency Communicator that Unit 2 was being shutdown. Notification of Unusual Event (NUE) had been initiated because of an interpretation that control rods were inoperable. State and local emergency notification were notified as required by the Prairie Island Emergency Plan. The inspector responded to the site to observe plant shutdown and to monitor licensee response. The plant was shutdown without rod motion by addition of boric acid. When reactor power was below 15% the plant was manually tripped and all rods responded. The NUE was terminated at 1443 with the plant shutdown.

The inspector held discussions with shift personnel and reviewed plant logs. The inspector was informed that the on-shift SS on May 2, 1982 had evaluated the Technical Specification requirements and had re-polled the Operations Committee. The Operations Committee reevaluated the circumstances against the Technical Specification requirements and interpreted that the TS Limiting Conditions for Operations (LCO) had been exceeded. (Time allowable for an inoperable control rod is 8 hours.) The licensee's emergency plan requires initiation of an NUE whenever the SS determines that plant shutdown is required by a TS LCO.

The problem was identified to be in the electrical portion of the system. The rod control system was repaired and the plant systems were realigned for restart. The required surveillances were completed and the plant was restarted and synchronized to the grid on May 3, 1982. The licensee identified the event as requiring an event report (LER) and submitted a prompt notification to RIII[5/] on May 3, 1982.

5/ NSP Letter to RIII, Reportable Occurrence No.P-RO-82-07, dated May 3, 1982.

Subsequent review of the TS indicated that the second SS had conservatively evaluated the control rod drives to be inoperable when they did not respond to a movement signal, whereas, the intent of the TS is that it "cannot be moved by its drive mechanism" relates to being movable as a result of excessive friction or mechanical interference or untrippable, as is better described in Standard Technical Specifications.[6/] The licensee completed evaluation of the event and determined that, because the LCO had not been exceeded, the Technical Specifications did not require an event report. The licensee documented this in a letter to RIII.[7/] (Closed)

b. Safety Injection (SI) Pump Operation Without Minimum Flow

1) Pump Operation

On May 5, 1982, while completing SP-2088 Monthly Safety Injection Pump Test of the No.22 SI Pump, an alert operator observed a fluctuation in suction pressure and shut down the pump. Immediate investigation of the cause by the auxiliary building operator and Shift Supervisor (SS) found that the pump casing was hot. Further investigation found that manual valve No.2SI-15-4 was closed, isolating minimum flow.

After opening valve No.2SI-15-4 and verifying that the No.22 SI pump shaft turned freely by hand, the surveillance test was satisfactorily completed, verifying that the pump had remained operable. The inspector discussed the event with operating shift personnel shortly after the event. He also reviewed plant records and discussed the event with plant Technical Staff and management to determine the cause.

2) Background

Review of Plant records determined that the No.22 SI pump had been taken out of service on April 5, 1982 to repack the discharge valve. Valve No.2SI-15-4 had been tagged closed to provide isolation for performing the maintenance, in accordance with the Work Request Authorization (WRA) No.E7401-SI-Q. The WRA required prior testing of the No.21 SI pump, which was performed. The No.22 SI Pump was demonstrated to be operable after completion of the maintenance and the isolation had been "returned to normal status" by the operator on duty.

Review of the test record for SP-2088 that had been performed on April 5, 1982 to demonstrate operability showed that the pump had performed satisfactorily, satisfying the criteria of maintaining discharge pressure within acceptance criteria during the prescribed 15 minute operation. However, it was not clear from the portion of the WRA that prescribes the isolation requirements, whether valve No.2SI-15-4 had been reopened. The

6/ NUREG-452 Revision 4. Standard Technical Specifications for Westinghouse Pressurized Water Reactors.

7/ NSP Letter to RIII, Reportable Occurrence No.P-RO-8207, dated May 14, 1982.

person that had specified the isolation status had not made an entry in the "normal status" column for valve No.2SI-15-4, although for all other valves and switches he had identified the "normal status" as well as the "isolation status". Discussions with operations personnel could not confirm the "as left" status following the test performed on April 5.

Performance of SP-2088 on May 5 indicated normal operation until just before termination of the test (the pump had already been running the required 15 minutes) when the operator stopped the pump. The pump was operated for 19 minutes during the test performed on May 5.

3) Probable Causes

It appears that valve No.2SI-15-4 had remained closed following the maintenance performed on the system on April 5. The system design does not provide indication of flow through the minimum flow test line nor position indication in the control room for the manual valves. SP-2088 does not currently include verification of all minimum flow valve positions prior to pump operation.

4) Safety Significance

Although lack of a minimum flow path for a SI pump would not affect pump operation during a large break LOCA, it appears that it could cause pump failure if undetected during a small break LOCA, when system pressure may exceed pump discharge pressure. This could cause damage to one of the two redundant pumps.

5) Licensee Actions to Prevent Recurrence

The licensee is considering one or more of several alternatives for assuring that the event will not recur. These include revising SP-1088/2088 to require verification of all minimum flow valves prior to pump operation, addition of the valves to the monthly valve position verification checklist and a design change to add flow indication to the minimum flow line.

6) Reportability

The licensee initially identified the event as a Significant Operating Event (SOE) requiring investigation by plant management and reporting the results to the Operations Committee (OC) and Safety Audit Committee (SAC). On May 25 the OC concluded that the event should be classified as reportable. The licensee plans to report the event to RIII in accordance with TS 6.7.B.2.c.

No items of noncompliance were identified.

9. Preparation for Refueling

The inspectors reviewed all changes to refueling and fuel receipt procedures since the last refueling to insure that technically adequate approved procedures were available covering the receipt, inspection and storage of new fuel and the handling and storage of spent fuel.

The inspectors witnessed portions of the receipt, inspection and storage of new fuel. This included verification of the qualification of fuel receipt inspectors, and verifying compliance with the fuel receipt procedures.

No items of noncompliance were identified.

10. Management Interviews

The inspector attended an exit interview conducted by RIII inspector L. Hueter on May 7, 1982.

The inspector conducted interim interviews during the inspection period and met with Mr. Tierney at the conclusion of the inspection. The inspector discussed the scope and results of the inspection.

No items of noncompliance were identified.