

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No: 50-282/81-13; 50-306/81-15

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: June 1-30, 1981

Inspectors:

C. D. Feierabend

C. D. Feierabend

7/2/81

B. L. Burgess

B. L. Burgess

7/2/81

Approved By:

W. S. Little

W. S. Little, Chief
Reactor Projects Section 2C

7/9/81

Inspection Summary

Inspection on June 1-30, 1981 (Report No: 50-282/81-13; 50-306/81-15)

Areas Inspected: Routine resident inspection of plant operation, maintenance, surveillance, security, radiation protection, independent verification of systems, and followup on IE Circulars. The inspection involved a total of 167 inspector hours onsite by 2 NRC inspectors including 37 inspector hours onsite during off-shifts.

Results: No items of noncompliance were identified in six areas. One item of noncompliance was identified in one area, failure to maintain integrity of the auxiliary building special ventilation zone. (Unit 1 only.)

DETAILS

1. Personnel Contacted

F. Tierney, Plant Manager
J. Brokaw, Plant Superintendent, Operations and Maintenance
E. Watzl, Plant Superintendent, Plant Superintendent, Plant Engineering and Radiation Protection
A. Hunstad, Staff Engineer
R. Lindsey, Superintendent, Operations
J. Nelson, Superintendent, Maintenance
J. Hoffman, Superintendent, Technical Engineering
M. Klee, Superintendent, Nuclear Engineering
D. Schuelke, Superintendent
D. Haugland, Engineer
G. Lenertz, Engineer
G. Miller, Engineer
G. Sundberg, Engineer
D. Stember, Engineer
W. Gauger, Instrument & Control Supervisor
J. Bierbrauer, Instrument & Control Coordinator
D. Cragoe, Shift Supervisor
P. Ryan, Shift Supervisor
M. Balk, Shift Supervisor
D. Walker, Shift Supervisor
P. Valtakis, Shift Supervisor

2. Operational Safety Verification

a. General

Unit 1 operated routinely throughout the month. Unit 2 was shut-down on June 11, 1981 to investigate a high vibration problem with #21 Reactor Coolant Pump. The pump has been removed from the casing and is being decontaminated prior to inspection.

Visitors to the site during the month included W. S. Little, RIII, on June 29, 1981.

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 proper return to service of affected components.

c. Tours

Tours of the auxiliary, turbine and containment 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.

By observation and direct interview, the inspector verified that security procedures were being implemented in accordance with the plant security plan.

The inspector conducted numerous tours of the Unit 2 containment and auxiliary building areas to determine status of #21 Reactor Coolant Pump maintenance progress, adherence to radiation protection controls, and housekeeping/cleanliness conditions. Housekeeping in both the auxiliary building and Unit 2 containment has been adequate.

d. Independent Verification

The inspectors performed a walkdown of the accessible portions of the Fire Protection and Emergency Diesel Generator 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 using a plant specific checklist developed by the inspectors, to assure that plant equipment and instrumentation are properly aligned.

e. Auxiliary Building Special Ventilation Zone Integrity

While conducting a tour of the auxiliary building at approximately 10:25 A.M. on June 22, 1981, the inspector observed that both doors of the shield building airlock to the Unit 2 containment personnel airlock were ajar. The doors were held open about 8 inches by airflow through the airlock. The inspector notified the Unit 2 Shift Supervisor via plant telephone, closed the outer door and waited for the auxiliary building operator. The operator arrived in about two minutes, and verified that the inner door had closed. Apparently the door closer had sufficient force to close the door when the airflow was stopped by closing the outer door. The inspector had passed the area approximately 15 minutes earlier in the tour. At that time the doors would have had to be closed or the inspector would have heard the audible alarm. Discussions with the operator in the control room verified that the annunciator indicated that both shield building airlock doors were open, but he did not know just when the alarm was received. Operations in progress at the time included starting a diesel generator for surveillance testing. This would generate some alarms but would not have an affect on the doors in question. It appears that the operator acknowledged the alarm without observing the annunciator.

There was no indication of personnel traffic through the doors at the time. It appears that the doors opened by a pressure differential together with a failure of an interlock and/or latch. Attempts to duplicate the failure were unsuccessful. The licensee secured the inner airlock door so that it cannot be opened from the outside. This will remain secured while the containment and shield building maintenance airlocks are open.

Technical Specification 3.6.A.8 states that "During maintenance, construction and testing activities, containment integrity is considered intact if the auxiliary building special vent zone boundary is opened intermittently, provided such openings are under direct administrative control and can be reduced to less than 10 square feet within 6 minutes following an accident." The area of the opening was approximately 8 square feet, but was not under direct administrative control.

The licensee logs control of openings in the ABSVZ. The inspector confirmed that no other openings had been authorized during the period that the doors were observed to be open. ABSVZ testing verifies that negative pressure in the zone can be maintained with a 10 square foot opening, thus the ABSVZ function does not appear to have been degraded during the occurrence.

Because the doors were not under direct administrative control, the occurrence is considered to be noncompliance with Technical Specification 3.6.A.1.

3. Fire Protection (FP) System

The inspector conducted a detailed audit of the licensee's fire protection system including independent verification of component status and valve positions, review of completed surveillance tests and work requests, verification that Technical Specifications operability requirements were met and observation of portions of surveillance testing in progress.

a. Technical Specification Operability Requirements

The inspector verified status of the following subsystems and confirmed that requirements were met.

- 1) TS3.14.A Fire Detection Instrumentation
- 2) TS3.14.B Fire Suppression Water System
- 3) TS3.14.C Spray and Sprinkler Systems
- 4) TS3.14.D Carbon Dioxide System
- 5) TS3.14.E Fire Hose Stations

b. Technical Specification Surveillance Requirements

The inspector reviewed records of surveillance tests, observed portions of hydrostatic tests of fire hoses, observed fire pump operability testing and performed an independent verification of all valve positions that could affect FP supply to safety related areas or equipment. The following surveillance test results were reviewed. Tests were performed as scheduled with satisfactory results.

SP-1203 Hydrostatic Test of Fire Hoses

The fire hose hydrostatic test pressure of 300 psig required by 10 CFR 50 Appendix R appeared to be excessive as it caused failure of several hoses. The hoses were replaced with tested spares. The licensee is reevaluating the test pressure requirements to determine appropriate pressure for future tests that will be performed in accordance with Technical Specification requirements.

SP-1053 Fire Protection System Monthly Fire Pump Running Test

The inspector observed testing in progress and confirmed test results to be satisfactory.

SP-1187 Diesel Driven Fire Pump Battery Inspection

SP-1188 Carbon Dioxide System Weekly Test

SP-1189 Fire Detector Check

SP-1192 Safeguards Electrical and Mechanical Penetration Inspection

SP-1194 Cardox System Test

SP-1195 Valve Cycle Checklist

SP-1197 Header System Flush

SP-1200 Supply Valves to Safety Related Areas

In addition to reviewing test results, the inspector independently verified valve position of all main and branch headers and approximately 90% of all root valves to local hose stations. No discrepancies were found, however, the inspector observed that the position of two of the underground valves were controlled by a seal, where it appeared more appropriate for a lock to more positively control the valve positions. The licensee replaced the seals with locks prior to the end of the inspection period.

4. Surveillance

The inspectors witnessed portions of surveillance testing of safety related system 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 LCO's were not violated, that system and equipment restoration was completed, and that test results were acceptable to test and Technical Specification requirements. In addition to fire protection system tests (paragraph 3.b above), the inspector witnessed the following test:

SP-2181 Overpressure Protection System Setpoint Verification Test

This test is performed prior to cooldown to cold shutdown to insure that a low pressure protection system is available and will function at the required setpoint.

The test was satisfactory.

5. IE Circulars

The inspector verified that the licensee had received IE Circulars (IEC's) and had taken actions to review for applicability and implementation where required.

- a. IEC No.80-11 Emergency Diesel Generator Lube Oil Cooler Failures
(Closed)
- b. IEC No.80-14 Radioactive Contamination of Plant Demineralized Water System (Closed)
- c. IEC No.80-15 Loss of Reactor Coolant Pump Cooling and Natural Circulation Cooldown (Closed)
- d. IEC No.80-21 Regulation of Refueling Crews (Closed)
- e. IEC No.80-23 Potential Defects in Beloit Power Systems Emergency Generators (Closed)
- f. IEC No.81-01 Design Problems Involving Indicating Pushbutton Switches Manufactured by Honeywell Incorporated (Closed)
- g. IEC No.81-05 Self Aligning Rod End Bushing for Pipe Supports (Closed)
- h. IEC No.81-07 Control of Radioactively Contaminated Material (Closed)
- i. IEC No.81-06 Potential Deficiency Affecting Certain Foxboro 10 to 50 Milliampere Transmitters.

The inspector observed a portion of licensee's actions in response to the circular. The licensee determined that some of the transmitters identified in the circulars are installed.

Inspection of the transmitters verified that the suspect insulation sleeving was not installed, but that some suspect capacitors are installed.

The licensee is continuing to evaluate the transmitters in accordance with the circular and will replace any suspect capacitor boards in accordance with the vendor recommendations. (Open)

6. Reactor Coolant Pump (RCP)

The inspector observed licensee activities associated with identification of excessive vibration of the No.21 RCP and with preparations for inspection and repairs. The plant was shut down on June 11, 1981 to investigate increased vibration and an increase in the pump seal leak-off flow. After inspection of the pump seals, the pump was run to attempt to eliminate the vibration by balancing. This was not successful, so the licensee continued investigation and determined that the problem was in the pump, as it could not be rotated by hand. The licensee has successfully removed the pump from the casing and is in the process of decontamination to reduce exposure levels during disassembly and repair. The cause of the problem has not yet been identified.

The inspectors observed portions of the initial investigation of vibration and seal leakage and observed planning and briefing sessions prior to preparation of detailed procedures and prior to initiation of work. The inspector attended Operations Committee (OC) meetings, and reviewed detailed procedures that were initiated and approved prior to use. This included use of specially fabricated tanks for decontamination and for lift and movement of the pump in accordance with control of heavy loads. No areas of concern were identified.

The inspector observed final preparations for lifting the pump out of the casing, while maintaining a protective covering around the pump to minimize spread of contamination. This consisted of a skirt around the pump as it was raised and a large bag raised up around the pump after it had been allowed to drain for a period of time.

The only problem with the movement of the pump was that there was some additional dripping into the bag, so that the bag accumulated 15 or 20 gallons of water while the pump was being moved. The pump was moved to where the bag could be drained into a barrel by puncturing the bottom of the bag, and then the transfer of the pump to the rinse tank was satisfactorily completed.

The licensee maintained good radiological control of the operation, minimizing exposures with additional shielding and by closely controlling exposure times. Maximum exposure indicated by dosimetry during the operation was 240 mr to one of the maintenance supervisors.

The licensee is preparing to decontaminate the pump impeller and diffuser areas prior to any disassembly and repairs. Highest measured reading during the initial survey was 10 R/hr at contact with the pump impeller. The licensee is continuing deliberate investigation of the pump problem and the inspectors are following progress toward identification and resolution.

7. Exit Interviews

The inspectors attended an exit interview conducted by RIII inspectors A. G. Januska and M. J. Oestmann on June 16, 1981. No areas of concern were identified.

The inspector conducted an exit interview with Messrs. Tierney, Watzl, and Hunstad at the conclusion of the inspection. The inspector discussed the scope and results of the inspection.