U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No: 50-282/84-04(DPRP); 50-306/84-03(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 55066

Inspection Conducted: April 11, 1984 - June 10, 1984

Inspectors: J. E. Hard

P. L. Hartmann

Approved: I. N. Jackiw, Chief
Reactor Projects Section 2B

6-25-84
Date

Inspection Summary

Inspection on April 11, 1984 - June 10, 1984 (Report No. 50-282/84-04(DPRP); 50-306/83-04(DPRP)
Areas Inspected: Routine resident inspection of plant operational safety, maintenance, surveillance, TMI-2 items follow up, ATWS procedure review, Licensee Event Report. The inspection involved a total 267 of inspector-hours onsite by 2 NRC inspectors including 30 inspector-hours onsite during off-shifts.
Results: One item of deviation was identified in one area (failure to meet amendment commitment - paragraph 7).

DETAILS

1. Persons Contacted

D. McCarthy, Chairman of the Board
C. Larson, Vice President, Nuclear Generation
E. Watzl, Plant Manager
*D. Mendele, Plant Superintendent, Engineering and Radiation Protection
*R. Lindsey, Plant Superintendent, Operations and Maintenance
*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
K. Albrecht, Superintendent, Quality Engineering
M. Klee, Superintendent, Nuclear Engineering
R. Conklin, Supervisor, Security and Services

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

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (50-282/83-20-01(DPRP)): Operation with Inadequate Offsite Power Supplies to ESF 15.

The inspector reviewed the licensee response. Corrective actions taken were adequate and the inspector verified that they were complete.

(Open) Noncompliance (50-282/83-18-01(DPRP)): Failure to Follow Surveillance Procedure.

The inspector reviewed the licensee response. One area of corrective action identified by the licensee requires additional inspection. This matter will be discussed in inspection report 50-282/84-09; 50-306/84-08.

3. Operational Safety Verification

a. Plant Operations

Units one and two have been base loaded at near full power throughout the inspection period. A few routine power reductions were performed for testing purposes on each unit. A power reduction was required by technical specifications as discussed in paragraph 6.

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.

A safety tag audit was conducted on portions of the cooling water, and chemical and volume control systems.

No items of noncompliance or deviations were identified.

c. Tours

Tours of the containment, 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.

During a routine inspection tour during this inspection period, the inspector identified an item of noncompliance relating to shield building air lack doors. This item is discussed in inspection report 50-282/84-07.

No other items of noncompliance or deviations were identified.

d. Independent Verification

The inspector performed a complete walkdown of the accessible portions of the Unit 1 and 2 cooling water 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 review of control room and local system indication to insure proper operation within prescribed limits.

No items of noncompliance or deviations were identified.

e. Steam Generator Tube Leakage

Primary-to-secondary leakage in Unit 1 steam generator No. 11 has increased to about 0.016 gpm (T.S. limit is 1.0 gpm). "Normal" or "background" indicated leakage in a steam generator without leaking tubes is about 0.001 gpm. The licensee is reviewing results of the last eddy current inspection using the latest analytical techniques in an attempt to locate the leaking tube(s).

No items of noncompliance or deviations were identified.

4. Maintenance Observations

Station maintenance activities on safety related systems and components listed below were observed/reviewed to ascertai that they were conducted in accordance with approved procedures, regulat 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.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activities were observed/reviewed:

12 Boric Acid Pump Mechanical Seal Replacement
12 Charging Pump Preventive Maintenance
21 Regenerative Heat Exchange Temperature Instrument Preventive Maintenance
Caustic Addition Tank Recirculation Line Filter Removal

In addition to the routine inspection of maintenance activities, a Performance Appraisal Team inspection was conducted May 7-11, 1984 of maintenance related areas. This inspection is the subject of inspection report 50-282/84-06 and 50-306/84-06.

No items of noncompliance or deviations were identified.

5. Surveillance

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 properly 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:

SCP-1002A	Analog Protection Calibration
SP-1698	Chlorine Monitor Weekly Check
SP-1037	Turbine Overspeed Trip Test
SP-1054	Turbine Stop, Governor and Intercept Valve Test

No items of noncompliance or deviations were identified.

6. Leak in Caustic Addition System for Unit 1

Shortly before 10:10 P.M., CDT on May 31, 1984, a serious leak occurred in the caustic addition system recirculation piping for Unit 1. The caustic addition system uses sodium hydroxide of 9-11% concentration and is part of the containment spray system (an engineered safety feature). Since the caustic addition tank level dropped below the technical specification limit of 2590 gals. (about 97%), unit load was ramped down, beginning at 10:51 P.M. By 4:39 A.M. on June 1, the tank had been refilled above the technical specification limit and load reduction halted at 20%.

While load was reduced, licensee performed routine turbine valve surveillance testing. By 9:28 A.M. on June 1, 1984 unit load had been returned to 100%.

Investigation revealed that the leak in the caustic addition recirculation system occurred when a filter gasket blew out. The recirculation pump was shut down promptly and the leak ultimately isolated by a crew dressed in plastic suits and respirators. Tank level had dropped to 39% at the time of isolation.

Refilling of the caustic addition tank was accomplished by pumping through a temporary hose from the caustic supply for the secondary water treatment system.

The unusual event was terminated at 4:48 A.M. on June 1.

The senior resident inspector was notified of the event at 11:45 P.M. on May 31 and arrived at the site at 1:00 A.M. on June 1. He remained at the site until the event was terminated. The Region III Regional Duty Officer was notified of the event by the NRC Duty Officer in Bethesda at 12:30 A.M. on June 1. The States of Minnesota and Wisconsin were notified of the event. There was no media interest.

7. Reactor Coolant System Vents (A TMI-2 Item)

As noted previously in Report Nos. 50-282/83-24(DPRP); 50-306/83-24(DPRP), Item 10, the RCS vent system is completely installed and will be considered operational with control power fuses installed after approval of detailed operating procedures and issuance of technical specifications. Subsequently, on March 27, 1984, Amendment No. 69 to the Unit 1 license and Amendment No. 63 to the Unit 2 license were issued as were revised technical specifications, to require that the vent system paths be operable under certain plant conditions. These amendments were to be

effective after the NRC resident inspector audits the operating procedures related to this vent system and after the first cold shutdown occurring after April 1, 1984 or after the next refueling outage, whichever is earlier for each unit. The purpose of the latter requirement is to allow blocking and tagging of certain manual valves in the vent system.

On April 11, 1984, fuses were installed for the vent system solenoid valves thus making the vent systems operable for both units. However, the requirements for procedure review and valve blocking and tagging discussed above had not been met at the time the fuses were installed. The inspector discussed this matter with the licensee and with the NRR Project Manager and it was agreed that the fuses should be removed. This was done on April 12.

An after-the-fact audit by the inspector showed emergency procedure 1FR-1.3, which discusses vent valve operation to be adequate for the purpose. However, the requirement for blocking and tagging the manual valves will not be met until cold shutdown or refueling outages occur.

Activating the vent systems without meeting the requirements discussed above is an item of deviation which is discussed further in Appendix B (50-282/84-04-01; 50-306/84-04-01).

8. Construction Work at Site

Construction work at the Prairie Island site is managed by the NSP Nuclear Engineering and Construction (NEC) organization under the Vice President for Engineering and Construction. This organization has under its purview the design, construction, and testing of major modifications at the site. Site management of NEC work is done by the Project Manager, P.I., and his staff. QA efforts related to this work are performed by Power Supply QA, a separate organization in the Power Supply Division.

Design work is done mainly by A-E's such as Fluor-Pioneer, Stone and Webster, and Gibbs and Hill. Electrical work is done by the electrical contractor, Commonwealth Electric. Other craftsmen (except insulators) are procured as needed by NSP through a system known as the Force Account Employee System.

NEC works very closely with the operating staff in the installation of these major modifications. During outages, for example, NEC work is scheduled and coordinated by the plant scheduling group.

Following is a listing of some of the more significant projects under way at the site:

- RIVLIS - The reactor vessel level indicating system. This is a TMI-2 item to be installed during the 10-year outages in 1985.

- New Service Building (New Plant Computer) - To house new computer, expanded maintenance shops and related equipment discussed below. Should be finished by June 1984.

- Computer Uninterruptable Power Supply - This involves a new battery installation in the Service Building.

- Diesel-Generators - Two new units for non-safety related loads are being installed simultaneously with the new Service Building.

- Relocate Radiological Dose Assessment Computer - To be moved from the EOF to the Service Building.

- Intake Canal - Problems caused by temperature stratification in the canal will require modifications which are still being defined.

- Spent Fuel Pool Modifications - The fuel handling crane must be modified in order to reach all storage locations.

- Containment Air Header - A change is required so that the header doesn't stop the air supply to certain control systems on containment isolation.

- Appendix R - Modifications in this area are managed by the plant staff, NEC provides the assistance needed.

- CR Drive Room Cooling - New chillers are being installed for these rooms.

- Steam Generator Blowdown Capacity - The capacity is being increased and heat recovery to be provided.

- Shift Supervisor's Office - Significant redesign and rearrangement is planned.

- Safety Injection Line Replacement - Severely cracked boric acid piping is to be replaced during the 10-year outage.

9. TMI-2 Follow-up Items

1. SPDS Safety Analysis and Implementation Plan

This is a NUREG-0737, Supplement 1 item. NSP was committed to submitting a report to NRC by April 15, 1984 (See NSP letter to Director, NRR, March 30, 1984). The report was submitted on April 10, 1984.

2. Implementation of Upgraded EOP's (Action Plan Item I.C.1.2, I.C.1.3)

These items are another NUREG-0737, Supplement 1 commitment. NSP had agreed to implementation this by April 1, 1984. The inspector confirmed that the procedures were implemented on that date, that all emergency procedures were included in the new manual, and that the updated versions were available in the control room. These items are closed for both Units 1 and 2.

3. Automatic Trip of Reactor Coolant Pumps (Action Plan Item II.K.3.5)

Generic Letters 83-10c and 83-10d discuss NRC staff requirements for this item. NSP's response for Prairie Island is contained in their letter to the Director, NRR dated April 26, 1984. The inspector confirmed that the principal emergency procedures which might involve tripping of the RCP's had been issued and that they did contain the manual tripping provisions (these procedures are Safety Injection, Loss of Reactor Coolant, and Steam Generator Tube Rupture).

10. Review of Anticipated Transient Without Scram Procedure

The inspector reviewed in some detail the Anticipated Transient Without Scram (ATWS) procedures and identified inadequacies in the immediate actions. The inspector forwarded these concerns to the Office of Nuclear Reactor Regulation (NRR). NRR staff discussed these procedures with the Westinghouse Owners Group. The commitment by the Westinghouse Owners Group to resolve ATWS procedure inadequacies is contained in a memo dated May 24, 1984 from F. Miraglia, Assistant Director for Safety Assessment, Division of Licensing, to C. Norelius, Director, Division of Project and Resident Programs, Region III.

11. Licensee Event Report (LER) Update Review

PRO 83-30, 22 Diesel Cooling Water Pump Inoperable

The inspector reviewed Revision 1 of LER PRO-83-30. The original cause was unknown. Additional investigation disclosed inadequate installation instructions by the vendor. Additional information supplied by the vendor provided for trouble-free installation of the speed indicator of both diesel cooling water pumps.

12. IE Bulletin Followup

(Closed) IEB 80-05: Damage to CVCS Holdup Tanks

IE Bulletin 80-05 refers to the installation of low pressure trips on the transfer and recirculation pumps for the CVCS Holdup tanks. The purpose of these trips is to protect the Holdup tanks from vacuum conditions which could collapse the tank.

Inspection Report No. 50-282/81-17; 50-306/81-19, dated September 8, 1981, closed out this Bulletin. The inspector reported at that time that the licensee had completed a design change which added the required low pressure trips. This item was closed in the usual manner in 1981.

In response to a Regional request, the current inspector reconfirmed that the modification was completed under Design Change #80L589 and that the change was preop tested as authorized under WR#E0323, May 12, 1981.

13. Meeting with Corporate Management

On June 1, 1984 the Senior Resident Inspector met separately with D. W. McCarthy and C. E. Larson of NSP corporate management to discuss general regulatory matters related to the operation of the Prairie Island Nuclear Generating Plant.

14. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) throughout the inspection period and at the conclusion of the inspection on June 11, 1984. The inspectors summarized the scope and findings of the inspection activities, discussed shift manning, 10 CFR 55 requirements, and incorporation of "motherhood" statements in Prairie Island technical specifications.