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

REGION III

Report No: 50-282/81-22; 50-306/81-24

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: December 1-31, 1981

Inspectors:

C. D. Feierabend 1/5/82

B. L. Burgess 1/5/82

Approved By:

W. S. Little, Chief 1/18/82
Reactor Projects Section 2C

Inspection Summary
Inspection on December 1-31, 1981 (Report No. 50-282/81-22; 50-306/81-24)
Areas Inspected: Routine resident inspection of plant operation, maintenance, organization and administration, fire protection, training, surveillance, security, radiation protection, radiation shipments, leak rate determination, followup on IE Bulletins, followup of Reportable Events, followup of plant trips, and observation of the integrated FEMA emergency drill. The inspection involved a total of 152 inspector hours onsite by 2 NRC inspectors including 26 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
D. Mendele, Superintendent Operations Engineering
D. Schuelke, Superintendent, Radiation Protection
R. Lindsey, Superintendent, Operations
R. Stenroos, Assistant Radiation Protection Superintendent
J. Nelson, Superintendent, Maintenance
M. Sellman, Superintendent of Training
J. Hoffman, Superintendent, Technical Engineering
M. Klee, Superintendent, Nuclear Engineering
A. Smith, Senior Scheduling Engineer
S. Northard, Nuclear Engineer
J. Curtis, Engineer
D. Brown, Engineer
J. Ruether, Engineer
B. Frazer, Engineer
S. Schaefer, Engineer
G. Miller, Engineer
T. Thomas, Engineer
O. Nelson, Engineer
K. Beadell, Engineer
D. Cragoe, Shift Supervisor
P. Ryan, Shift Supervisor
M. Balk, Shift Supervisor
T. Goetsch, Shift Supervisor
J. Meath, Shift Supervisor
D. Walker, Shift Supervisor
P. Valtakis, Shift Supervisor
R. Held, Shift Supervisor

*Denotes those attending the exit interview.

2. Licensee Action on Previous Inspection Findings

The inspectors have reviewed previous inspection reports to determine whether items previously identified have been addressed. Some of these items may have been addressed during subsequent inspections but had not been identified as "Closed" in inspection reports.

a. (Closed) Noncompliance (50-282/81-13; 50-306/81-15)

Related to auxiliary building special ventilation zone boundry doors being open. The inspection confirmed that corrective action was as described in the licensee response. /1

/1 NSP Letter to RIII dated August 13, 1981.

3. Operational Safety Verification

a. General

Unit 1 returned to 100% power on December 4, 1981, after review and evaluation of the reactor coolant activity.

Unit 2 tripped from 57% power on December 5, 1981 at 0128 and returned to 100% power the same day after repair of a feed water regulator valve. The unit operated routinely through the rest of the month.

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.

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.

d. Unit 1 Reactor Coolant Activity

The licensee continued to monitor reactor coolant level activity. On December 4 the licensee evaluated the activity level and approved return to full power. No significant changes occurred after return to full power. Activity levels continue to drop.

No items of noncompliance were identified.

4. Organization and Administration

The inspector reviewed the licensee's onsite organization and confirmed that it is as described in Technical Specifications. There have been no recent changes in key supervisors.

No items of noncompliance were identified.

5. Fire Protection

The fire protection system was audited during a previous inspection. /2 The inspectors observed a fire alarm test on December 9th and observed a fire drill on December 4th, including response by the city fire department. The test and drill were completed and no apparent problems with

/2 IE Inspection Report No. 50-282/81-13; 50-306/81-15.

personnel response or with equipment.

No items of noncompliance were identified.

6. Diesel Cooling Water Pump 12

The inspector reviewed the internal information report addressed in a previous inspection report./3 The report identified the failure of the overspeed switch as a random failure and not a generic problem. (Closed 282/81-04-01; 306/81-04-01)

No items of noncompliance were identified.

7. 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 LCO's were not violated, that system and equipment restoration was completed, and that test results were acceptable to test and Technical Specification requirements.

Test witnessed included:

a. SP-1520 Emergency Communications Monthly Test.

The inspector reviewed the test procedure and observed portions of the test in progress. The procedure verifies the emergency communication channels between the plant and outside agencies that would be used during emergencies. The test did verify all channels, but did not include testing of every extension within the plant (ie NRC resident office or the HP net extension in the health physics office). The licensee will include all extensions in the next revision to the test.

During conduct of the test the communicator was not able to get response from the NRC Headquarters Operations Center (HOC) on the health physics network (HPN No.22). The communicator reported this to the HOC via the NRC ENS (red) phone.

The inspector received calls from the telephone company within 15 minutes checking operability. The inspector later independently verified that all three extensions of the HP net were operable by calling the HOC.

/3 IE Inspection Report No. 50-282/81-04; 50-306/81-04.

b. SP-1093 — Diesel Generator Manual and 4KV Voltage Rejection - Restoration Scheme Test.

The test was satisfactory.

c. SP-12-19 — 4.16 Safeguards Bus 16 Undervoltage Relay Test.

While performing the test an electrician inadvertently left his test equipment hooked up to one phase of the bus while installing the opposite end of the test equipment to another phase of the same bus, causing a phase to phase short through the test equipment. The undervoltage relay fuses for Bus 16 blew, causing Bus 16 to sense a loss of voltage condition which started the undervoltage transfer scheme for Bus 16. The bus tie-breaker closed between Bus 16 and Bus 15. As Bus 16 still had the loss of voltage signal (due to the blown fuses) the D-2 diesel generator started and was transferred onto Bus 16 without an actual electrical power loss to the bus.

The inspector observed the bus transfer in the control room and responded to the Bus 16 switchgear room. The system engineer and the electrician performing the test had already identified the problem and had removed the test equipment from the bus. A review of the procedure identified a caution statement to the person perf rming the procedure to remove all test leads from one phase before installing test leads to another phase. The inspector observed the remainder of the surveillance, which was performed satisfactorily.

The licensee has now added a fuse to the test equipment with a lower current rating than the undervoltage relay fuses, to prevent recurrence. The procedure will also be revised to add a step requiring a "sign off" by the test performer to indicate that all test equipment leads are removed before proceeding to install the leads to another phase.

The licensee will evaluate this event for reportability.

No items of noncompliance were identified.

8. Licensee Event Report Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

a. P-RO-80-37 Inadequate Installation of NAMCO Limit Switches.

The licensee completed installation of the qualified limit switches during the Unit 1 refueling outage. (Closed)

b. P-RO-81-14 After investigation and review the licensee's Operations Committee concluded that this event, involving foreign material in a pressurizer safety valve loop seal, was not reportable. The event was discussed with RIII management during the annual SALP meeting on October 10, 1981. The licensee forwarded an informational report[4] in accordance with a verbal commitment made during the SALP meeting. This report is being reviewed by RIII engineering personnel. (Open)

No items of noncompliance were identified.

9. Maintenance

a. Review of Work Request (WR's) and Work Request Authorization (WRA's)

The inspectors selected and reviewed several WR's and WRA's to determine the status of safety related systems, to verify that proper priorities were given and to verify that design changes were initiated where appropriate.

b. Observations

The inspectors observed portions of safety related maintenance activities to determine that the activities did not violate limiting conditions for operations (LCO's), that administrative approvals and equipment control tags were completed prior to initiating the work, that approved procedures were used (or activity was within the "skills of the trade"), that the procedures used were adequate to control the activity, and that proper QA/QC controls were used.

The inspector observed portions of maintenance performed on valves that were identified as needing repair during annual surveillance discussed in a previous inspection report.[5] The inspector confirmed that test requirements were completed satisfactorily after valve maintenance. (Closed 282/81-18-01)

No items of noncompliance were identified.

/4 NSP Letter to RIII dated December 9, 1981.

/5 IE Inspection Report No. 50-282/81-18; 50-306/81-20.

10. Spent Fuel Assembly

On 12/16/81 at approximately 0730 spent fuel assembly D-34 was being transferred from spent fuel pool No.2 to spent fuel pool No.1. As the assembly was lowered for placement in the spent fuel rack, a corner of the spent fuel assembly came in contact with the spent fuel rack. The assembly was then raised for readjustment and the operator in charge noticed that the fuel assembly was not raising and requested the spent fuel bridge crane operator to raise the assembly. The spent fuel bridge crane operator then told the operator in charge that the assembly was being raised, but in fact the assembly had separated from the top nozzle and the top nozzle only was under operator control. The separated assembly slowly tipped towards the spent fuel wall and came to rest lodged between the spent fuel wall and a wier gate at approximately a 30° angle. The operator in charge then evacuated the spent fuel area and air samples were taken and area monitors observed for possible increases in radiation levels. No radiation level increases were noted. The top nozzle was then placed into a metal can supported by a rope for placement into the spent fuel pool transfer canal to await shipment for analysis.

The licensee is presently constructing a tool to upright the assembly and place it into the spent fuel rack. The inspectors are monitoring the licensee's actions and will review the licensee's procedures as they become available. The licensee has suspended all spent fuel movement until the recovery and evaluation of the assembly is completed.

The licensee has issued an Event Report (P-RO-81-31) which provides additional details.

No items of noncompliance were identified.

11. Radiation Shipment

The inspector observed the removal of the top nozzle from the spent fuel pool to the shipping cask. The top nozzle was separated from fuel assembly D-34 on 12/16/81 during spent fuel movement. (Discussed in paragraph 10)

Observations included the actual movement of the top nozzle to the shipping cask, review of the Work Request Authorization (WRA) and Radiation Work Permit (RWP), review of the bill of lading and shipment documents, and verification of radiation and contamination levels by observation of swipe surveys and independent measurement of the cask and trailer surfaces.

The top nozzle is being shipped to Batelle Memorial Institute for metalurgical analysis to determine the failure mode.

No items of noncompliance were identified.

12. Plant Trip

Prairie Island Unit 2 tripped from 57% reactor power on 12/5/81 at 0128. The trip occurred while reducing reactor power to conduct turbine stop and control valve testing. The trip was caused by a failed yoke on the loop "B" feed regulator valve, which allowed the feed regulator valve to fully open, filling the No.22 steam generator, which tripped both feed pumps on high steam generator level, tripping the turbine and subsequently the reactor.

Following the plant trip the inspector ascertained the status of the reactor and safety systems by review of plant and control room logs. A determination of the sequence of events was derived from the plant process computer and a review of computer trend recorders. The inspector held discussions with licensee personnel concerning plant parameters, safety system status, and reactor coolant chemistry. The inspector verified the red phone notification of the NRC and reviewed corrective actions taken.

All systems responded as expected, and after completion of maintenance to the loop "B" feed regulator valve the reactor was returned to power operation and the turbine generator paralleled to the grid at 1516 on 12/5/81.

No items of noncompliance were identified.

13. Emergency Drill

Prairie Island conducted an emergency drill on 12/8/81 to determine the state of readiness of the Prairie Island Plant and State, County, and Local emergency organizations. The drill was observed by the NRC Emergency Preparedness Appraisal Team and by members of the Federal Emergency Management Agency (FEMA).

The resident inspector observed control operations throughout the duration of the drill, and also observed licensee response in the Operations Support Center, Technical Support Center and in other plant areas.

No items of noncompliance were identified.

14. Training

The inspectors proctored a Senior Reactor Operations exam on 12/22/81 to assist the Region III Operators Licensing Branch.

No items of noncompliance were identified.

15. RCS Leak Rate Determination

a. Procedure Review

The inspector reviewed information relating to the determination of Reactor Coolant System (RCS) leakage as described in Surveillance Procedures Nos. 1001aa and 2001aa entitled "RCS Leakage Evaluation" for Unit 1 and 2 respectively and verified that the procedures were technically adequate and consistant with regulatory requirements.

b. Surveillance Requirements

Standard Technical Specifications limit Reactor Coolant System leakage to 10 gpm identified leakage and 1 gpm unidentified leakage and requires that a RCS water inventory balance be performed at least once every 72 hours during steady state operation. The licensee's Technical Specifications contain no specific surveillance requirements on RCS leakage. However, the inspector noted that the licensee determines RCS leakage daily.

c. RCS Leak Rate Evaluation

A two hour RCS water inventory balance was conducted on December 13, 1981. The inspector independently monitored and evaluated leak rate data to verify the licensee's calculation of the leak rate. There was acceptable agreement between the inspectors' and the licensee's leak rate calculations as indicated in the following summary (units are in gpm):

UNIT 1

Measurement	Licensee	Inspector
Gross leak rate	0.0063	0.02
Identified leak rate	0.0000	0.00
Unidentified leak rate	0.0063	0.02

UNIT 2

Measurement	Licensee	Inspector
Gross leak rate	0.2546	0.24
Identified leak rate	0.0000	0.00
Unidentified leak rate	0.2546	0.24

No items of noncompliance were identified.

16. Exit Interview

The inspector attended an exit interview conducted onsite by W. L. Axelson on December 9, 1981, to discuss RIII observations of licensee performance during the FEMA emergency drill conducted on December 8. The inspector also attended a meeting in the city of Red Wing conducted jointly by FEMA and RIII to discuss the overall evaluation of the results of the emergency drill.

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

No items of noncompliance were identified.

please notify this office promptly so that a new due date may be established. Consistent with Section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the reasons which are the bases for the claim that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, a copy of this letter and the enclosed inspection report will be placed in the Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

R. L. Spessard, Director
Division of Resident and
Project Inspection

Enclosure: Inspection Reports
No. 50-282/81-22 and
No. 50-306/81-24

cc w/encl:
Mr. F. P. Tierney, Jr.,
Plant Manager
DMB/Document Control Desk (RIDS)
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