U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-282/86005(DRP); 50-306/86005(DRP)

Docket Nos. 50-282; 50-306 Licenses No. DPR-42; DPR-60

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Facility Name: Prairie Island Nuclear Generating Plant, Units 1 and 2

Inspection At: Prairie Island Site, Red Wing, MN

Inspection Conducted: February 9 through April 12, 1986

Inspectors: J. E. Hard
M. M. Moser

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

4-22-86
Date

Inspection Summary

Inspection on February 9 through April 12, 1986 (Reports No. 50-282/86005(DRP); 50-306/86005(DRP))
Areas Inspected: Routine unannounced inspection by resident inspectors of previous inspection findings, plant operational safety, maintenance, surveillance, ESF Systems, facility modifications, refueling activities, followup of Licensee Event Reports (LERs), corporate management concerns, and IE Bulletin and Part 21 followup.
Results: No violations were identified in the 10 areas inspected.

DETAILS

1. Persons Contacted

*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
G. Lenertz, Superintendent, Maintenance
J. Hoffman, Superintendent, Technical Engineering
K. Beadell, Superintendent, Quality Engineering
M. Klee, Superintendent, Nuclear Engineering
R. Conklin, Supervisor, Security and Services
D. Vincent, Project Manager, Nuclear Engineering and Construction
J. Goldsmith, Superintendent, Nuclear Technical Services
A. Vukmir, Site Services Representative, Westinghouse

The inspectors interviewed other licensee employees, including members of the technical and engineering staffs, shift supervisors, reactor and auxiliary operators, Quality Assurance personnel, and Shift Technical Advisors.

Corporate personnel who were visited on February 18 and March 11, 1986, are listed in Section 10 below.

*Denotes those present at the exit interview on April 14, 1986.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (50-282/85024-02; 306/85022-02(DRP)): Turbine Driven Auxiliary Feedwater (TDAFW) pump failed special test. This item has been assigned LER No. 282/86005-01.

3. Operational Safety Verification (71707, 71710)

Unit 1 completed coastdown on March 4, 1986 for a routine 33 day refueling outage. Refueling was completed and the plant was back on line on April 10, 1986. Unit 2 was base loaded at 100% power except for reductions for surveillance testing, special maintenance, and weekend load following.

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

On March 24, 1986 while Unit 2 was operating at 100% power and Unit 1 was shutdown for refueling, both emergency diesel generators started but did not load. Diesel generator start was caused by loss of 2R transformer caused by a procedural error by relay workmen at the offsite substation. Normal operations were restored within 30 minutes. A second emergency diesel generator start occurred on March 28 and was caused by an under-voltage when cooling tower transformer (CT) 1 tripped. CT-1 trip was due to a sudden pressure alarm signal in the transformer oil cooling system. Normal operations were restored within one hour. This is an unresolved item (50-282/86005-06).

On April 10, 1986 while Unit 2 was operating at 100% power and Unit 1 was at approximately 15% power and increasing, a reactor trip occurred on Unit 1. The trip occurred because of low-low level in Steam Generator 11 caused by steam and feedwater flow instabilities. All systems responded as expected to the trip. The reactor was restarted and the generator placed on-line approximately six hours later.

No violations or deviations were identified.

4. Maintenance Observation (62703)

Routine maintenance activities as well as Unit 1 Outage Maintenance on safety-related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory 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 (LCOs) 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.

Portions of the following maintenance activities were observed/reviewed during the inspection period:

Preventive Maintenance (PM) of RCCCT and Thimble Plug Change Tool
Annual PM of Turbine Driven Auxiliary Feedwater Pump
Limitorque internal wire EQ Inspection/Replacement
Steam Generator Anti-Vibration Bar Installation
Steam Generator Snubber Removal/Testing/and Reinstallation

No violations or deviations were identified.

5. Surveillance (61726)

The inspectors 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.

Portions of the following surveillances were observed/reviewed during the inspection period:

SP 1072 Local Leak Rate Test
SP 1083 Safety Injection Test
SP 1093-11 Station Battery Load Test
SP 1102 TDAFW Pump Test

No violations or deviations were identified.

6. ESF System Walkdown (71710)

The inspectors performed a complete walkdown of the accessible portions of both emergency diesel generator 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 violations or deviations were identified.

7. Facility Modifications (37700, 37701)

Work on RVLIS during the Unit 1 outage included replacement of terminal strip connections for the temperature sensors with fully qualified electrical splices. With this work completed, the RVLIS for both Units 1 and 2 are believed to meet all regulatory requirements and are fully operational.

The new reactor upper internals replacement was successfully accomplished for the first time during this refueling outage. The licensee has elected to replace the upper internals on both units because of the generic problem with split pins.

8. Refueling Activities (60710, 86700)

Prior to the handling of fuel in the core, the inspectors verified that all testing required by the technical specifications and licensee procedures have been completed. During fuel movement, the inspectors verified that core monitoring boron concentration, refueling canal water level, and containment integrity were maintained as required by technical specifications and licensee procedures.

The inspectors witnessed refueling operations during several shifts observing: proper use of approved refueling and fuel shuffle procedures, adequate shift manning in the control room and at the refueling platform. The inspectors observed proper radiation controls, good housekeeping, and protection against foreign objects falling into the reactor in the refueling area.

In late January early February 1986, Exxon personnel performed comprehensive examinations of spent fuel removed from the Unit 2 reactor in the Fall of 1985. The licensee noted in discussions with the inspectors that during these examinations on February 6, a two inch piece of grid strap was found lodged behind the second grid of one of the assemblies being examined. Plant personnel have deduced that the piece must be from a fuel assembly which is still in the Unit 2 reactor. Unit 2 is currently running at full power. Reactor coolant system activity is being monitored closely for signs that fuel rod damage has been experienced. In addition, the damaged assembly will be removed during the next refueling outage, currently scheduled for October 1986.

Associated with the Unit 1 refueling were the following activities which were observed in part by the inspectors:

Zero Power Physics Testing
Reactor On-line
Reactor Vessel Head Removal
Reactor Fuel Shuffle
Reactor Criticality

No violations or deviations were identified.

9. LERs Followup (92700)

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:

(Open) 282/86005-01 Failure of oil pump on 11 TDAFW pump
(Open) 282/86005-02 Core exit thermocouples improperly assembled
(Open) 282/86005-03 Diesel generator start on loss of 2R transformer
(Open) 282/86005-04 Diesel generator start on loss of 2R transformer
(Open) 282/86005-05 Reactor trip because of steam-feedwater flow instabilities at low power

10. Meetings with Corporate Management (30702)

On February 18, 1986, the Senior Resident Inspector along with G. Lear and T. Colburn of NRR met with the following licensee personnel to discuss the NRR reorganization plus operation of the Prairie Island Plant:

D. McCarthy, Chairman of the Board and C.E.O.
B. Richard, President and C.O.O.
D. Gilberts, Senior Vice President, Power Supply

C. Larson, Vice President, Nuclear Generation
L. Eliason, General Manager, Nuclear Plants
G. Neils, General Manager, Headquarters Nuclear Groups
M. Sellman, Manager, Special Nuclear Programs
D. Musolf, Manager, Nuclear Support Services

In other meetings on February 18, discussions were held with the following licensee personnel:

T. Bushee, Supervisor, Media Services
R. Zerban, Manager, Corporate Security
G. Hudson, Administrator, Nuclear Security Services
G. Webster, Manager, System Control Center
D. Musolf, Manager, Nuclear Support Services
E. Eckholt, Nuclear Safety and Technical Services Engineer
T. Parker, Principal Safety and Technical Services Engineer
C. Nierode, Nuclear Engineer
R. Meyer, Engineer I

Subjects discussed included: plant security, public affairs activities, system electrical distribution, upper plenum injection, scheduling of plant modifications, results of PRA on the AFW system, seismic analysis of condensate storage tanks, the new technical specification submittal, plus other subjects.

On March 11, 1986 the Senior Resident Inspector and D. DiIanni of NRR met with NSP corporate officials to discuss general matters of regulatory interest. Persons contacted during this visit were:

C. Larson, Vice President, Nuclear Generation
G. Neils, General Manager, Headquarters Nuclear Group
D. Musolf, Manager, Nuclear Support Services
E. Eckholt, Nuclear Safety and Technical Services Engineer
R. Meyer, Engineer

11. Part 21 Report (92715)

In a letter dated November 26, 1985, Region III informed NSP of the results of an inspection of the implementation of Exo-Sensors, Inc., Quality Assurance program that was conducted by the Vendor Program Branch. This inspection was initiated as a result of allegations that Exo-Sensors, Inc., had failed to report a deficiency under 10 CFR Part 21 and that serious deficiencies existed with their Quality Assurance program. NSP responded in a letter dated December 10, 1985 indicating that hydrogen analyzers were purchased from Exo-Sensors, Inc., and also provided a maintenance history for the instruments. In a memo dated March 17, 1986 from NRC Region III, DRP, Projects Section 2B, the Senior Resident Inspector at Prairie Island was requested to evaluate the licensee's response with regard to the acceptability of equipment procured from Exo-Sensors, Inc.

In discussions with the cognizant system engineer and a review of maintenance history and equipment availability, the inspectors have concluded that NSP is satisfied that the Exo-Sensors, Inc., equipment is meeting procurement and technical specifications and that the equipment maintenance history is also acceptable.

12. IE Information Notice Followup (92701)

IE Information Notice 86-03: Potential deficiencies in environmental qualification of limitorque motor valve operator wiring.

In a memo dated March 27, 1986, the Prairie Island Resident Inspector was requested to determine what action the licensee has taken as it relates to IN 86-03 and the applicability of Generic Letter 85-15 with regard to this information notice. A package of pertinent information was forwarded to Region III on April 10, 1986 detailing the history and current status of limitorque EQ at Prairie Island.

13. Exit Interview (30703)

The inspectors met with licensee representatives denoted in Section 1 at the conclusion of the inspection on April 14, 1986. The inspectors discussed the purpose and scope of the inspection and the findings.

The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any document/processes as proprietary.