U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-306/85017(DRS)

Docket No. 50-306

License No. DPR-60

Facility Name: Prairie Island Nuclear Generating Plant, Unit 2

Inspection At: Prairie Island Site, Red Wing, MN

Inspection Conducted: September 16-18, and October 1, 1985

75. D. Ward K. D. Ward

Inspector:

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Approved By: D. H. Danielson, Chief Materials and Processes Section

Inspection Summary

Inspection on September 16-18, and October 1, 1985

(Report No. 50-306/85017(DRS)) Areas Inspected: Unannounced routine safety inspection of inservice safety inspection (ISI) activities and an auxiliary feedwater system modification. This inspection involved a total of 26 inspector-hours onsite by one NRC inspector, including 4 inspector-hours during off shifts. Results: No violations or deviations were identified.

10/21/85 Date 10/21/85 Date

DETAILS

1. Persons Contacted

Northern States Power Company (NSP)

*L. Dahlman, Material and Special Processes Specialist

M. Anderson, Assistant Materials and Special Processes Engineer

R. Kellerhall, Material and Special Processes Specialist

J. Johnston, Welding Engineer

Lambert, MacGill, Thomas, Inc. (LMT)

D. MacGill, Supervisor, Level III

Westinghouse Electric Corporation (W)

D. Kurek, Site Coordinator, Level III

Nuclear Regulatory Commission (NRC)

J. Hard, Senior Resident Inspector M. Moser, Resident Inspector

The inspector also contacted and interviewed other licensee and contractor employees.

*Denotes individual present at the final exit interview October 1, 1985.

2. Inservice Inspection

- a. General Information
 - (1) NSP contracted Lambert, MacGill, Thomas, Inc. (LMT), CONAM Inspection, and Westinghouse Electric Corporation (W) to develop and perform the inservice inspection (ISI) program in accordance with ASME Section XI, 1974 Edition, Summer 1975 Addenda; ASME Section XI, 1980 Edition, Winter 1981 Addenda for the eddy current examination (ET); and ASME Section XI, 1980 Edition, Winter 1983 Addenda for the ultrasonic examination (UT) of the reactor pressure vessel.
 - (2) LMT developed a system designed to track the progress of ISI NDE activities, utilizing a computer system called the "Inservice Inspection Records Manager." This ISI System is modular in design, allowing for expansion or modification to meet future needs. The basic system consists of a main "Outage Plan" file which describes each item or component scheduled to be examined, and identifies the methods and procedures to be

applied. Examination data is systematically stored in the computer system, and the main file is periodically updated to reflect the current status of each item or component. Should the need arise, the main file may be edited to add additional items, correct input errors, etc. The stored information may be recalled and presented in different formats. Examination reports, summary tables, personnel rosters, equipment lists, and report logs may be displayed on the computer monitor or sent to the printer. The options include error checking, data type validation, periodic verification of equipment calibration, and personnel certifications.

(3) From 1980 to the present time the feedwater nozzle welds No. FW133 and No. FW177 plus three inches on the pipe side from the weld and six inches on the nozzle side from the weld have been ultrasonically (UT) and magnetic particle (MT) examined every outage. No unacceptable indications have been found with UT; surface type indications have been been found with MT. In this regard, the following are the results addressed in the 90-day response from the licensee to the NRC after each ISI:

Year	Loop	Results	Year	Loop	Results
1980	A	Acceptable	1980	В	Acceptable
1981	A	Anomalies	1981	В	Anomalies
1982	A	Acceptable	1982	В	Anomalies
1983	A	Anomalies	1983	В	Anomalies
1984	A	Anomalies	1984	В	Anomalies
1985	A	Anomalies	1985	В	Anomalies

The feedwater pipe is 16" diameter, Schedule 80, SA-106, Grade C, P1 G2 material; and the nozzles are Schedule 40, SA-508, Class 2, P3 G3 material.

NSP believes that the anomalies were caused during original construction by inprocess activities such as attachment welds, fitup, lugs, and arc strikes. The anomalies were removed by light hand grinding and blending the surface smooth. The grinding has not resulted in reducing the wall thickness below minimum wall. Most of the indications were approximately 1/4" long and were in all directions. NSP blended approximately six inches on the pipe side from the weld and approximately eighteen inches on the nozzle side from the weld, visually and magnetic particle examined the areas and found them to be acceptable. NSP believes that this action should resolve the problem. The NRC inspector and resident inspectors discussed this item in detail with NSP's Welding Engineer and has no further questions.

- (4) The reactor pressure vessel welds were UT'd by Westinghouse with a remotely operated inspection tool and 10% of the vessel (ligament area) was manually UT'd. The vessel welds were found to be acceptable.
- (5) The eddy current examinations (ET) were performed by Westinghouse, and the results were evaluated by Westinghouse and CONAM. The ET covered 100% of all accessible tubing within steam generators (SG) No. 21 and 22. SG No. 21 had 7 unacceptable tubes plugged, and SG No. 22 had 12 unacceptable tubes plugged.

b. Program and Procedure Review

The inspector reviewed the following program and procedures:

- NSP, Magnetic Particle Examination, Yoke Method, MT-1, Revision 4
- NSP, Wet Magnetic Particle Examination, MT-2, Revision 2
- NSP, Liquid Penetrant Examination, PT-1, Revision 4
- NSP, Ultrasonic Examination of Pipe Welds, UT-1, Revision 3
- NSP, Automatic Data Recording, UT-2, Revision 3
- NSP, Ultrasonic Examination for Intergranular Stress Corrosion Cracking, NSP-UT-16, Revision 3
- NSP, Visual Examination, VT-1, Revision 1
- Visual Examination of Hanger Assemblies, VT-2, Revision 1
- W, Qualification of Ultrasonic Manual Equipment, NSD-151-10, Revision 6
- W, Manual Ultrasonic Examination of Ligament Area, ISI-55, Revision 0.
- W, Remote Visual Examination of Reactor Vessel Internals, ISI-88, Revision 1
- W, Preservice and Inservice Inspection of Reactor Vessels, ISI-154, Revision 3.
- W, Digital Multi-Frequency Eddy Current Inspection of Preservice and Inservice Heat Exchange Tubing, MRS, 2.4.2-GEN-28, Revision 0.
- W, SM-10W Operating Procedure, MRS 2.4.2-GEN-30, Revision 0.
- W, Preservice and Inservice Inspection Documentation OPS-NSD-101, Revision 5.

c. Material and Equipment Certification

The inspector reviewed the certification documents, relative to the following items:

- Ultrasonic instruments, calibration blocks, transducers, and couplant.
- Liquid penetrant materials, penetrant, cleaner, and developer.
- Magnetic particle materials and equipment.
- Eddy current equipment.
- d. NDE Personnel Certifications, Observations of Work Activities, Data Reports and Audits

The inspector reviewed NDE personnel certifications in accordance with SNT-TC-1A.

The inspector also observed the work and had discussions with personnel during review of the following activities. These observations included calibrations, performance of the examinations, and review of the documentation.

- Ultrasonic examination of Weld No. F2 on the Safety Injection System and of Weld No. 2 on the reactor pressure vessel.
- Visual examination of Weld No. 208, RHR System.
- Eddy current examination of SG Tubes No. 21 and No. 22.
- Liquid penetrant examination of Weld No. 208, RHR System.
- Data reports.
- Certification Review Reports (Audits).

No violations or deviations were identified.

3. Unit 2 Auxiliary Feedwater System Modification

On September 19, 1984, a meeting was held with the NRC staff relating to the environmental qualification of electrical equipment in the auxiliary feedwater pump room at the Prairie Island Nuclear Generating Plant. NSP committed to relocate the turbine stop valves for the steam driven auxiliary feedwater pumps outside of the auxiliary feedwater pump rooms in a letter to the NRC dated November 28, 1984.

This project consisted of the piping modifications and associated electrical and structural modifications required to relocate the auxiliary feedwater pump 2.2 steam supply Valve CV31999 from the auxiliary feedwater pump room in the turbine building Class 1 corridor to a location outside the Class 1 corridor near column row G-10.

The licensee contracted with the following companies to perform the designated activities:

- Nuclear Engineers, Inc. was responsible for design and procurement.
- AZCo was the mechanical contractor for the installation of piping including pipe supports, valve enclosures, and quality assurance.
- Commonwealth Electric Company was the electrical contractor for the installation of all the electrical modifications, including supply and erection of conduit and conduit supports.

The following is a description of the piping system:

- Design Class: I
- Design Pressure: 1085 psi
- Operating Pressure: 1005 psi
- Design Temperature: 600°F
- Operating Temperature: 560°F
- Pipe Size and Schedule: 3", Schedule 80
- Pipe Material: A106, Grade B

The NRC inspector observed the installed modification, visually examined the welds, reviewed the modification packages including drawings, data, installation plan, and other related documentation. The NRC inspector also reviewed the reports and radiographs of the welds and found them to be acceptable.

Magnaflux Quality Service (MQS) performed the radiography of 23 welds in accordance with ANSI B31.1. The following individuals interpreted the radiographs 100%:

- MQS Level II
- AZCo Level II
- NSP Level III
- ANI
- NRC

No violations or deviations were identified.

4. Exit Interview

The inspector met with site representatives (denoted in Persons Contacted paragraph) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection noted in this report. The inspector also discussed the likely informational content of the inspector tion report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/ processes as proprietary.