December 17, 1998

Mr. M. Wadley
President, Nuclear Generation
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

SUBJECT: NRC INSPECTION REPORT 50-306/98021(DRS)

Dear Mr. Wadley:

On November 24, 1998, the NRC completed an inspection at your Prairie Island Nuclear Generating Plant, Unit 2. The results of the inspection were discussed with Mr. J. Sorensen and other members of your staff on November 24, 1998. The enclosed report presents the results of this inspection.

The purpose of the inspection was to review the implementation of the inservice inspection program for the Prairie Island Unit 2 refueling outage cycle 19.

We concluded that, overall, the implementation of your inservice inspection program met ASME, Section XI requirements and was implemented in an effective manner with excellent engineering involvement in the oversight of the ISI activities. The areas examined during the inspection are identified in the report. The inspection consisted of a selective examination of procedures and representative records, interviews with personnel, and observations of activities in progress.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

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

Sincerely,

Original /s/ J. A. Gavula

James A. Gavula, Chief
Engineering Specialists Branch 1

Docket No.: 50-306
License No.: DPR-60

Enclosure: Inspection Report 50-306/98021(DRS)

cc w/encl: Plant Manager, Prairie Island
State Liaison Officer, State of Minnesota
State Liaison Officer, State of Wisconsin
Tribal Council, Prairie Island Dakota Community

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.:	50-306
License No.:	DPR-60
Report No.:	50-306/98021(DRS)
Licensee:	Northern States Power Company
Facility:	Prairie Island Nuclear Generating Plant
Location:	1717 Wakonade Drive East Welch, MN 55089
Dates:	November 16-20, 23-24, 1998
Inspector:	D. E. Jones, Reactor Inspector
Approved by:	James A. Gavula, Chief, Engineering Specialists Branch 1 Division of Reactor Safety

EXECUTIVE SUMMARY

Prairie Island Nuclear Power Station, Unit 2
NRC Inspection Report 50-306/98021

This inspection included a review of the implementation of the inservice inspection (ISI) program for the Prairie Island refueling outage cycle 19. The report covers on-site inspection by a regional inspector.

Maintenance:

- Nondestructive examinations were performed in accordance with applicable procedures. The ISI data evaluation and review was timely and accurate. Overall, the ISI program was implemented in an effective manner with excellent engineering involvement in the oversight of the ISI activities. (Section M1.1)

- Nondestructive examinations were conducted in accordance with the appropriate procedures and ISI program. The licensee's ISI program implementation met ASME Code requirements. (Section M3.1)

- Nondestructive examination was performed by qualified personnel. (Section M5.1)

Report Details

II. Maintenance

M1 Conduct of Maintenance

M1.1 Inservice Inspection (ISI)

a. Inspection Scope (73753 and 73755)

The inspector observed ISI examinations and reviewed ISI examination data packages to assure appropriate examination was performed and data was recorded as required by the ASME Code.

b. Observations and Findings

The inspector observed all or portions of the following nondestructive examination (NDE) activities:

- Ultrasonic testing of pressurizer surge line nozzle-to-pipe welds 1 and 2 (ISO# 2-ISI-31)
- Ultrasonic testing of main steam loop A welds 1 and 2 (ISO# 2-ISI-46A)
- Eddy current data acquisition of hot and cold leg tubes of steam generators (SG) 21 and 22
- Wire brushing and tube rolling of SGs 21and 22
- Ultrasonic testing of reactor vessel loops A and B hot leg outlet nozzles welds N7 and N10
- Visual examination of reactor vessel upper internal components

The SG eddy current examination inspection scope included 100% bobbin coil examination of all open tubes, 100% plus point coil examination of the hot leg tubesheet area, 100% of the dented intersections with plus point, row 1 and 2 U-bends, 100% of the hot and cold leg inconel 600 rolled plugs, and 25% of hot leg inconel 690 rolled plugs.

In situ pressure testing of 10 tubes (3 in SG 21, and 7 in SG 22) was conducted for condition monitoring assessment. This process provided reasonable assurance that indications left in service would be able to withstand the loadings specified in Regulatory Guide 1.121 for the operating interval between inspections. No leakage was identified from the 10 tubes tested. There were a total of 22 plugs installed (10 in SG 21, and 12 in SG 22), and 365 tubes rolled (204 in SG 21, and 161 in SG 22).

The inspector determined that the NDE data packages were properly reviewed by the licensee and the Authorized Nuclear Inservice Inspector (ANII). Ultrasonic indications

recorded on the data sheets were also properly evaluated. The inspector also reviewed certifications for equipment and consumable materials associated with these examinations. The NDE data packages, and equipment and consumable material certification records were found to be complete and accurate.

Excellent contractor oversight was noted in the management of the ISI contractors. Each NDE contractor was assigned a licensee engineer to provide coordination and oversight of the inspection activities. The inspector observed good interaction between the licensee and contractor NDE personnel during the eddy current examination of the steam generators and the reactor vessel interior visual examination.

c. Conclusions

Nondestructive examinations were performed in accordance with applicable procedures. The ISI data evaluation and review was timely and accurate. Overall, the ISI program was implemented in an effective manner with excellent engineering involvement in the oversight of the ISI activities.

M3 Maintenance Procedures and Documentation

M3.1 Program and Procedure Review

a. Inspection Scope (73051, 73052)

The inspector reviewed the ISI program and its implementation for compliance with Technical Specifications, ASME Code and NRC requirements.

b. Observations and Findings

The inspector reviewed the licensee's third ten-year ISI program plan, "Inservice Inspection Examination Plan", Revision 1, effective December 21, 1994 through December 20, 2004. All ISI procedures reviewed were found to be in accordance with ASME Code, Section V and XI, 1989 Edition requirements. Examinations were performed in accordance with the Technical Specifications, the ASME Code, Section XI and Generic Letter 95-03 “Circumferential Cracking of Steam Generator Tubes.” Where ASME requirements were determined to be impractical, specific relief requests were submitted to Nuclear Reactor Regulation in writing. The licensee had requested relief from ASME Code requirements for the use of existing calibration blocks (Relief Request 7, conditionally approved on February 22, 1996).

The licensee procured the services of an ANII from Hartford Steam Boiler Inspection and Insurance Co. of Hartford, Connecticut. The ANII reviewed procedures, personnel qualifications, instrument and material certifications, and examination results. The NRC inspector's review indicated that the ISI program was acceptable.

c. Conclusions

Nondestructive examinations were conducted in accordance with the appropriate procedures and ISI program. The licensee's ISI program implementation met ASME Code requirements.

M5 Maintenance Staff Training and Qualification

M5.1 ISI Personnel Qualifications

a. Inspection Scope (73753)

The inspector reviewed ISI personnel qualifications of licensee and contract personnel performing the ISI activities observed in Section M1.

b. Observations and Findings

Qualification of personnel performing NDE work was verified. NDE personnel were knowledgeable of procedural requirements and proficient in the performance of NDE. Personnel performing NDE were found to have proper qualifications which had been reviewed and accepted by the licensee staff and the ANII.

c. Conclusions

NDE was performed by qualified personnel.

M8 Miscellaneous Maintenance Issues (92902)

M8.1 (Closed) VIO 50-282/97003-01(a)(b)(DRS); 50-306/97003-01(a)(b)(DRS): Failure to obtain Code relief pursuant to 10 CFR 50.55 (g) and Technical Specification 4.2 for welds associated with reactor vessel and inservice examinations. The licensee responded to the Notice of Violation (Notice) by letter dated April 14, 1997. The inspector confirmed that the corrective actions referenced in the licensee's response to the Notice were being implemented. The licensee issued procedure ISI-LTS-1, "Limitations to NDE," which provides instruction for identifying, quantifying and recording of limitations encountered while performing examinations under the ISI program. Paragraph 7.7 of the procedure stated that when the maximum examination coverage practically achievable for a code required item was less than required; a relief request was required to be submitted to the NRC. In addition, the licensee has submitted a relief request following the Unit 1 outage and review of first period, 3rd interval limited examinations.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to a member of licensee management at the conclusion of the inspection on November 24, 1998. The licensee acknowledged the findings presented and did not identify any of the potential report input discussed as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Northern States Power Company (NSP)

*K. Albrecht, Engineering Manager
*P. Hajovy, Plant ISI Coordinator
*R. Pearson, Steam Generator Manager
*S. Redner, NDE Consulting Specialist
*J. Ricker, Superintendent , Materials and Special Processes
*J. Sorenson, Plant Manager

Lambert MacGill Thomas, Inc.

D. Halling, Lead

Framatone, Inc.

B. Grisham, Lead

Wes Dyne

D. Kurek, Level III

ABB CE

B. Smith, Lead

U.S. Nuclear Regulatory Commission (NRC)

*P. Krohn, Resident Inspector
S. Ray, Senior Resident Inspector
S. Thomas, Resident Inspector

Hartford Steam Boiler Inspection and Insurance Company (HSB)

L. Dillon, ANII

*Denotes those present during the exit interview on November 24, 1998.

INSPECTION PROCEDURES USED

IP 73753	Inservice Inspection
IP 73051	Inservice Inspection-Review of Program
IP 73052	Inservice Inspection-Review of Procedures
IP 73755	Inservice Inspection-Review of Data
IP 92902	Followup-Maintenance

ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

50-282/97003-01(a)(DRS) 50-306/97003-01(a)(DRS)	VIO	Failure to obtain Code relief pursuant to 10 CFR 50.55(g) and Technical Specification 4.2 for 14 welds associated with reactor vessel examinations
50-282/97003-01(b)(DRS) 50-306/97003-01(b)(DRS)	VIO	Failure to obtain Code relief pursuant to 10 CFR 50.55(g) and Technical Specification 4.2 for 73 inservice examinations

LIST OF DOCUMENTS REVIEWED

Prairie Island Unit 2 Category C-3 Inspection Results, Preliminary Report to the NRC-November 17, 1998

Procedure	Revision	Title
ISI-ET-1.0	9	Bobbin Coil Data Analysis Guidelines
ISI-ET-2.0	6	Eddy Current Data Management Procedure
ISI-ET-3.0	6	Rotating Coil Data Analysis Guidelines
ISI-ET-4.0	0	Eddy Current Independent QDA
ISI-ET-5.0	0	Eddy Current Site Specific Performance Demonstration
H25.1	2	Assessment of Steam Generator Tube Degradation Mechanisms
H25.3	2	Steam Generator Tube Repair Criteria
ISI-UT-1	12	Ultrasonic Examination of Ferritic Steel Pipe and Fitting Welds
ISI-UT-3	8	Ultrasonic Examination of Ferritic Welds
ISI-VT-5.0	3	Visual Examination of Prairie Island Reactor Vessel Interior
NSP-ISI-154	2	Remote Inservice Examination of Reactor Vessel Inlet Nozzles
NSP-ISI-54	0	Manual Ultrasonic Examination for the Reactor Vessel Upper Shell to Flange Weld
2008374-In Situ	00	In Situ Pressure Test Using the Computerized Data Acquisition System
2008374-RR	00	Rerolling of Steam Generator Tubes with 0.0875" O.D. by 0.050" Wall

LIST OF ACRONYMS USED

ANII	Authorized Nuclear Inservice Inspector
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
DRS	Division of Reactor Safety
ISI	Inservice Inspection
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
SG	Steam Generator
VIO	Violation