

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

REGION III

Report Nos. 50-282/81-07; 50-306/81-08

Docket Nos. 50-282; 50-306

License Nos. 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: Northern States Power Company, Minneapolis, MN

Inspection Conducted: April 6, 1981

Inspector: *K. D. Ward*
K. D. Ward

4/15/81

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

4/15/81

Inspection Summary

Inspection on April 6, 1981 (Report Nos. 50-282/81-07; 50-306/81-08)

Areas Inspected: Review of inservice inspection (ISI) procedures, nondestructive examination (NDE) personnel certifications and data; IE Bulletins 79-13, 79-17, 80-08 and 81-01 activities. The inspection involved a total of seven inspector-hours at the licensee corporate offices by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

Persons Contacted

Northern States Power Company (NSP)

P. Krumpas, Superintendent Materials and Special Processes
*L. Dahlman, Materials and Special Processes Specialist

*Denotes those present at the exit interview.

Licensee Action on IE Bulletins

- Ref: 1. NRC IE Bulletins 79-13 dated June 7, 1979, 79-13, Rev. 1 dated August 30, 1979 and 79-13, Rev. 2 dated October 22, 1979, titled, "Cracking in Feedwater System Piping," Unit 2.
2. NSP letter to Region III dated July 13, 1979, Response to item 5 of IE Bulletin 79-13, Unit 2.
3. NSP letter to Region III dated August 29, 1979. Further response to IE Bulletin 79-13, Unit 2.
4. NRC Region III Report No. 306/80-03, IE Bulletin 79-13 and 79-17 Unit 2 Activities.
5. NRC IE Bulletin 81-01 dated January 28, 1981, titled "Surveillance of Mechanical Snubbers" Units 1 and 2.
6. NSP letter to Region III dated February 6, 1981. Final response to IE Bulletin 81-01, Units 1 and 2.

(Closed) IE Bulletin 79-13, Unit 2. The inspector reviewed the final response and action taken and has no questions at this time.

(Closed) Unresolved Item 282/80-11-01, IE Bulletin 79-17, Unit 1. The inspector reviewed the final response and action taken and has no questions at this time for Unit 1.

(Closed) IE Bulletin 79-17, Unit 2. The inspector reviewed the final response and action taken and has no questions at this time.

(Closed) Unresolved Item 282/80-11-02, IE Bulletin 80-08, Unit 1. The inspector reviewed the final response and action taken and has no questions at this time for Unit 1.

(Closed) Unresolved Item 306/80-12-01, IE Bulletin 80-08, Unit 2. The inspector reviewed the final response and action taken and has no questions at this time for Unit 2.

(Closed) IE Bulletin 81-01, Units 1 and 2. The inspector reviewed the final response action taken and has no questions at this time.

Functional or Program Areas Inspected

1. General Information

- a. NSP requested Lambert, MacGill, Thomas, Inc. (LMT) and Westinghouse Electric Corporation (W) to develop and perform the inservice inspection program in accordance with ASME Section XI, 1974 Edition, Summer 1975 Addenda.
- b. This is the fifth outage of the first ten year plan for Unit 2.

2. Procedure Review

The inspector reviewed the following procedures:

- a. NSP, Magnetic Particle Examination, Yoke Method, NSP-MT-2, Rev. 2, December 10, 1980.
- b. NSP, Wet Magnetic Particle Examination, NSP-MT-2, Rev. 0, December 10, 1980.
- c. NSP, Liquid Penetrant Examination, NSP-PT-1, Rev. 2, December 10, 1980.
- d. NSP, Ultrasonic Examination of Pipe Welds, NSP-UT-1, Rev. 1, December 10, 1980.
- e. NSP, Automatic Data Recording, USP-UT-2, Rev. 1, December 10, 1980.
- f. NSP, Ultrasonic Examination of Ferritic Vessels with Wall Thickness 2.5" and Greater, NSP-UT-3, Rev. 1, February 16, 1980.
- g. NSP, Ultrasonic Examination of Studs and Bolts, USP-UT-4, Rev. 1, December 10, 1980.
- h. NSP, Axial Ultrasonic Examination of Studs and Bolts, NSP-UT-4B, Rev. 1, February 16, 1981.
- i. NSP, Ultrasonic Examination of Cast Stainless Steel Piping, NSP-UT-11, Rev. 1, February 16, 1981.
- j. NSP, Visual Examination, NSP-VT-1, Rev. 2, December 10, 1980.
- k. NSP, Visual Examination of Assembled Hanger Assemblies, NSP-VT-2, Rev. 2, December 10, 1980.

- l. W, Immersion Ultrasonic Procedure for Investigating for Presence of Sub-cladding Cracks in Reactor Vessel Nozzle Bores, FH-CC-001, Rev. 0, July 1980.
- m. W, Installation and Removal of Temporary Nozzle Covers MRS 2.2.2, GEN-2, Rev. 3, July 1979.
- n. W, Post-Activity Sign-Off for Area Cleanliness, MRS 2.2.2 GEN-6, Rev. 3, September 16, 1974.
- o. W, Installation and Removal of Eddy Current Positioning Devices MRS 2.4.2 GEN-19, Rev. 0, July 1977.
- p. W, Multi-frequency Eddy Current Inspection of Steam Generator Tubing - Preservice and Inservice, MRS 2.4.2 Gen-23, Rev. 2, March 1980.
- q. W, Control of Field Service Activities, OPR 610-3, Rev. 1, July 1 1979.
- r. W, Reactor Vessel Inspection Program Preparation and Documentation, NSD-RV-ISI-01, Rev. 1, July 1975.
- s. W, Remote Visual Examinations of Reactor Vessel Internals, W ISI-88, Rev. 1, December 13, 1975.
- t. W, Calibration and Operation Procedure for the ISI of Reactor Vessels Using the Westinghouse Remote Inspection Tools, ISI - 153 Rev. 0, February 9, 1981.
- u. W, Certification of the Qualification of Personnel for Mechanical Plugging, TS-SG-TP-80-45, Rev. 0, November 6, 1980.
- v. W, Installation Procedure, Mechanical Plug in 7/8" O.D. x 050" Wall Inconel Tubes Using F-3 Tooling System, TS-SG-80-070, Rev. 1, July 1980.

No items of noncompliance or deviations were identified.

3. Material and Equipment Certification

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

- a. Ultrasonic instruments, calibration blocks, transducers and couplant.
- b. Liquid penetrant, Magnaflux materials, penetrant, cleaner and developer.

- c. Magnetic particle, Magnaflux materials and equipment.
- d. Eddy current, equipment.

No items of noncompliance or deviations were identified.

4. NDE Personnel Certifications

The inspector reviewed the following NDE personnel certifications in accordance with SNT-TC-1A, 1975 Edition:

LMT

<u>Name</u>	<u>UT</u>	<u>MT</u>	<u>PT</u>	<u>VT</u>
L. Davis	I	I	II	I
R. Kellerhall	II	II	II	I
R. Pechacek	II	II	II	
E. Thomas	III	III	II	I
W. Tighe	II	I	I	
F. Abrigo		II	II	

NSP

<u>Name</u>	<u>UT</u>	<u>MT</u>	<u>PT</u>	<u>VT</u>
L. Dahlman	II		II	II
D. Hansen	III	III	III	
G. Lenertz		II	II	

Westinghouse

<u>Name</u>	<u>UT</u>	<u>PT</u>	<u>VT</u>	<u>Et</u>
P. Bukes	II	II	II	
W. Hazlett	II			I
R. Haines	II			I
G. Conrad	II	II		II

No items of noncompliance or deviations were identified.

5. Review of Data Reports

The inspector reviewed data reports demonstrating that the QA/QC requirements were met.

Westinghouse ultrasonic examinations of Unit 2 reactor vessel outlet nozzle bores revealed a number of recordable indications. Twenty-two discrete reflectors were identified in the cylindrical section of the loop 1 outlet nozzle bore and eighty-three discrete reflectors were

identified in the cylindrical section of the loop B outlet nozzle bore. No reflectors were detected in the taper regions of either the loop A or loop B outlet nozzles. The reflectors meet the acceptance standards of ASME Section XI, 1974 Edition, Summer 1975 Addenda, also the 1977 Edition of Section XI which is more critical. This was verified by a detailed Westinghouse fracture mechanics analysis.

Westinghouse eddy current examination of tubes in 21 and 22 Steam Generators revealed thinning of several steam generator tubes. This thinning falls into two distinct groups: thinning at the first and second tube support sheets, and thinning at the antivibration bars. The following criteria were used. For tube support plate thinning, tubes with thinning in excess of 45% were plugged. The 45% limit at the first and second support plates was based on a review of results by Westinghouse and their conclusion that these results were consistent with their assumptions in arriving at their 50% plugging criterion. An additional 5% allowance was made to provide for possible errors in analysis of the eddy current readings. In the antivibration bar area, all tubes showing more than 40% thinning were plugged.

The following is a list of tubes that were plugged.

Steam Generator 2.1

<u>Row</u>	<u>Column</u>	<u>Row</u>	<u>Column</u>
43	33	46	52
44	59	28	11

Steam Generator 2.2

<u>Row</u>	<u>Column</u>	<u>Row</u>	<u>Column</u>
36	51	37	49
36	52	33	49
32	63	33	67
33	46	39	67
37	46	39	68
32	17	36	76
36	18	31	78
35	19	32	79
34	20	38	58
37	21	32	62
42	33	40	61
44	35	40	60
45	36	36	60
38	53	33	59
43	53	33	57
46	43	33	56
39	28	38	55
36	35	36	53
40	51		

No items of noncompliance or deviations were identified.

Exit Interview

The inspector met with Mr. L. Dahlman (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.