

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

REGION III

Report No. 50-282/80-16

Docket No. 50-282

License No. DPR-42

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

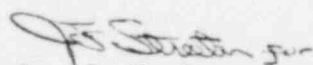
Facility Name: Prairie Island Nuclear Generating Plant Unit 1

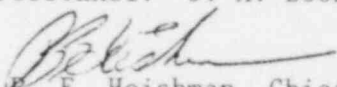
Inspection At: Red Wing, MN 55066

Inspection Conducted: October 8-9, 1980

Inspector:  J. F. Streeter

10/30/80

Accompanying Personnel:  J. M. Boone 10/30/80

Approved By:  R. F. Heishman, Chief
Reactor Operations and
Nuclear Support Branch

10/30/80

Inspection Summary

Inspection on October 8-9, 1980 (Report No. 50-282/80-16)

Areas Inspected: Routine announced inspection of containment integrated leak rate test. The inspection involved 21 inspector-hours on site by one NRC inspector including six inspector-hours on site during offshifts.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

D. Haugland, Test Director

E. Watzl, Plant Superintendent, Plant Engineering and Radiation Protection

The inspector also talked with and interviewed several other members of the operations, radiation protection and engineering groups.

2. Licensee Action on Previous Inspection Findings

During the test, the inspector confirmed the availability of continuous containment pressure indication in the control room and the installation of special containment smoke detectors. This indication and equipment were provided to assure prompt detection of a fire inside containment during the leak rate test and reflect experience gained during the Unit 1 leak rate test in 1977.

3. Containment Integrated Leak Rate Test

a. Procedure Review

The inspector reviewed Revision 4 (approved October 1, 1980) of Section 5 of the procedure SP-1071(5) (2071(5), "Procedure for the Containment Vessel Integrated Leakage Rate Test", and determined that the procedure was technically adequate and consistent with regulatory requirements. The inspector stated that the figure of merit for the instrumentation system during a reduced pressure test should be $\leq .25$ Lt rather than $\leq .25$ La as stated in Item F of Appendix C. The licensee stated he would change the procedure prior to using it for the Unit 2 test in 1981. The inspector determined that the figure of merit did not exceed .25 Lt during the present Unit 1 test.

No items of noncompliance or deviations were identified.

b. Instrumentation

The inspector reviewed the calibration data associated with instrumentation used in performing the test. A multipoint calibration of all instrumentation was performed and correction factors were entered into the computer program. All calibrations were traceable to NBS standards.

No items of noncompliance or deviations were identified.

c. Witness of Test

The inspector witnessed portions of the Type A and verification tests and verified that:

- (1) Appropriate revision of procedure was in use by test personnel.
- (2) Test prerequisites were met.
- (3) Test crew size and crew qualifications were commensurate with the needs of the test.
- (4) Procedure changes were properly approved.

No items of noncompliance or deviations were identified.

d. Direct Observation of Valve Lineups

During the test, the inspector visually verified the positions of the valves or flanges listed below:

<u>Valve or Flange</u>	<u>Position</u>	<u>System</u>
SA-17-1	Shut (line vented)	Service Air Supply
Blind Flange	Installed	Service Air Supply
CV-31740	Shut (Line vented)	Instrument Air Supply
NG-1-1	Shut (Line vented)	Nitrogen to No. 11 and 12 Accumulators
HC-5-3	Shut	Hydrogen Control Vent to Shield Building
HC-5-4	Open	Hydrogen Control Vent to Shield Building
Blind Flange	Installed	Steam Heating

The positions of all valves and flanges were in agreement with the procedure and attached tags.

No items of noncompliance or deviations were identified.

e. Blowdown

The inspector verified that the licensee had evaluated containment air activity following commencement of the verification test and depressurization to assure blowdown was within Technical Specification release limits. All containment air was exhausted to the auxiliary building and then filtered prior to being released (monitored) from the plant.

No items of noncompliance or deviations were identified.

f. Data Evaluation

The test (at reduced pressure of ~ 24 psig) sequence from completion of pressurization to completion of the verification test was as follows:

<u>Activity</u>	<u>Duration</u>
Stabilization	4-1/3 hours
Type A	10-1/3 hours
Verification	8 hours

The inspector independently monitored and evaluated leakage rate data to verify the licensee's calculations. There was acceptable agreement between the inspector's and licensee's calculations as indicated in the following summary (units are in weight percent per day):

<u>Measurement</u>	<u>Licensee</u>	<u>Inspector</u>
Leak rate measured during Type A test (Ltm)	0.0435	0.0426
Leak rate measured during Type A test at upper 95% confidence level	0.0806	0.0797
Leak rate measured during verification test (Induced leak rate was 0.0490)	0.0839	0.1091

The above measured values are based upon a containment free volume of 1,340,000 cubic feet. The highest measured leak rate at the upper 95% confidence level was 0.0435 which is much less than the 10 CFR Part 50, Appendix J, acceptance criterion of 0.1157. The highest and lowest values for the verification test were 0.0839 and 0.1091 which fall within the 10 CFR Part 50, Appendix J, acceptance band of .0531 to .1302 (based on inspector's Ltm).

No items of noncompliance or deviations were identified.

g. Containment Volume

The inspector noted several different values referenced for containment net free volume as follows:

<u>Source</u>	<u>Value</u>
FSAR, Section 5.2-1	1,320,000 cubic feet

Report of Unit 1 Reactor
Containment Building Integrated
Leak Rate Test July, 1973, Page 2 1,364,000 cubic feet

Report of Unit 1 Reactor
Containment Building Integrated
Leak Rate Test July, 1973, Page 65 1,356,711 cubic feet

Licensee 1,340,000 cubic feet

The licensee stated that the value (1,340,000) he was using was based upon the 1,356,711 value minus 1% for flowmeter error. The inspector calculated the leakage rate assuming 1,370,278 (1,356,711 plus 1% for flowmeter error) and the results were as follows:

<u>Measurement</u>	<u>Value</u>
Leak rate measured during Type A test (Ltm)	0.0492
Leak rate measured during Type A test at upper 95% confidence level	0.0894
Leak rate measured during verification test (Induced was 0.0480)	0.1097

Although the calculations (measurements) based upon the increased volumes were slightly larger, all values were well within the acceptance criteria. The inspector had no further questions regarding this matter.

h. Criteria for Reduced Duration Test

The licensee satisfied all of the criteria listed in IE Inspection Report 50-263/79-18, Paragraph 7.

4. Appendix J Exemption Requests

The inspector reviewed the licensee's letters to the NRC dated August 9, 1976, and May 30, 1980. Region III will review this area further when NRR dispositions the licensee's exemption requests.

5. Exit Interview

Because the inspection was concluded after working hours on October 9, 1980, the inspector summarized the purpose and the scope of the inspection and the findings in a telephone call to Mr. E. Watzl on October 10, 1980.