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

REGION III

Report No. 50-263/80-06

Docket No. 50-263 License No. DPR-22

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

Facility Name: Monticello

Inspection At: Monticello, MN

Inspection Conducted: March 24, 27 - 30, April 24 - 25, and May 6 - 7, 1980

Inspectors: J F Streeter for E. T. Chow (March 24 only) 6/2/80

J F Streeter for J. B. Hopkins (March 24, 27 - 29 only) 6/2/80

J F Streeter J. F. Streeter (March 27 - 30, April 24 - 25, May 6 - 7 only) 6/2/80

Approved By: R F Heishman R. F. Heishman, Chief, Reactor Operations and Nuclear Support Branch 6/3/80

Inspection Summary

Inspection on March 24, 27-30, April 24 - 25, and May 6 - 7, 1980 (Report No. 50-263/80-06)
Areas Inspected: Routine announced inspection of containment integrated leak rate test; local leak rate testing; and followup on previous inspection findings related to leak rate testing. The inspection involved 82 inspector - hours on site by three NRC inspectors.
Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

D. D. Antony, Superintendent, Technical Engineering
M. H. Clarity, Plant Superintendent, Plant Engineering and Radiation Protection
*R. A. Goranson, Associate Production Engineer
W. A. Shamla, Plant Manager

The inspectors also talked with and interviewed several other members of the Operations and Technical Engineering groups.

*Denotes person attending the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Licensee Commitments (50-263/77-21, Exit Interview): Integrated Primary Containment Leak Rate Test Procedure, Valve Lineups, and Instrument Calibrations. The inspectors verified that the licensee had fulfilled his commitments. There were no leakages subtracted from the measured leak rate.

3. Integrated Primary Containment Leak Rate Test (IPCLRT)

a. Procedure Review

The inspectors reviewed Revision 4 (approved March 20, 1980) of the procedure for Test #0136, "Integrated Primary Containment Leak Rate Test," prior to performance of the first IPCLRT on March 30 - 31, 1980. Some valves (RHR-43 and RHR-50) were not included in the procedure but the licensee issued temporary changes to the procedure to include them. The inspectors noted that the drywell, torus, and drywell to torus differential pressure switches were not exposed to containment pressure (i.e., their isolation valves were closed) during the IPCLRT. This is an Unresolved Item (50-203/80-06-01) pending further review by the inspectors. The licensee stated that he would consider testing those switches during the next IPCLRT by having the isolation valves open.

The inspector reviewed Revision 5 (approved May 2, 1980) of the procedure for Test #0136 prior to performance of the second IPCLRT on May 6 - 7, 1980. The inspector had no comments other than the above Unresolved Item on Revision 5.

No items of noncompliance or deviations were identified.

b. Instrumentation

The inspectors reviewed the calibration data associated with performing the IPCLRT. A multipoint calibration of all instrumentation was performed. All calibrations were traceable to NBS standards.

No items of noncompliance or deviations were identified.

c. Witness of Tests

The inspectors witnessed portions of both IPCLRTs and verified that:

- Appropriate revision of procedure was in use by test personnel.
- Test prerequisites were met.
- Proper plant systems were in service.
- Test crew size and crew qualifications were commensurate with the needs of the test.
- Procedure changes were properly approved.

No items of noncompliance or deviations were identified.

d. Direct Observation of Valve lineups

Prior to the initial IPCLRT, the inspectors visually verified the positions of approximately 25 valves including AS-39 and AS-40 (service air to drywell) and AI-29, AI-211, AI-209, AI-118, and CV-1478 (instrument air to drywell). During the plant tour with a licensee representative for position verification, two problems were noted as follows:

(1) The licensee found a service air hose connection station valve in the RCIC room to be in the closed (incorrect) position. This valve had a hold card attached indicating the valve should be open and documentation indicated that two independent checks were made prior to the tour to verify the valve to be open. The licensee opened the valve which depressurized, as intended, a section of the service air header supplying the drywell to avoid the possibility of makeup air being supplied to the containment during the IPCLRT. An investigation by the licensee failed to reveal the cause of the incorrect valve position. The licensee issued a plant memorandum on April 18, 1980, to inform personnel of the circumstances of the matter and to emphasize the importance of valve position verifications and hold cards.

The inspector had no further questions concerning this matter.

(2) The inspector found a pipe cap missing from the local leak rate test line associated with valve HPCI-67. The licensee installed the cap. No other pipe caps out of a sample of approximately 25 were found to be missing.

The inspector had no further questions concerning this matter.

During the second IPCLRT, the inspector made a tour of the leak rate test panel area in the Reactor Building and the torus area. No problems were identified during that tour.

No items of noncompliance or deviations were identified by the inspector.

e. Data Evaluation

Two separate IPCLRTs were conducted by the licensee on March 30 - 31 and May 6 - 7, 1980. Two tests were run because the data from the supplemental verification portion of the initial test did not verify the accuracy of the measured leak rate. The second IPCLRT was successfully verified. The results of the two tests are described in more detail below.

(1) Initial IPCLRT - March 30 - 31, 1980

The initial IPCLRT was conducted over approximately a 16 hour interval. The supplemental test lasted 3 hours. The licensee used the reference vessel method whereas the inspectors used both the reference vessel and absolute methods to evaluate the test data. Comparison of agreement between the inspectors' and licensee's leak rate calculations are indicated in the following summary (units are in weight percent per day):

Measurement	Licensee (Reference Vessel)	Inspector Reference Vessel	Inspector Absolute
Leak rate measured during IPCLRT	0.3880	0.4007	0.4580
Leak rate measured during supplemental test (Induced leak rate was 0.6424)	0.6308	0.7219	1.2122

As the above summary indicates, there was acceptable agreement during the IPCLRT but not during the supplemental test. Based on the licensee's analysis of the leak rate trend, he concluded that the supplemental test was successful. The inspectors did not agree with the licensee's analytical approach regarding the leak rate trend; however, the inspectors concluded from their own evaluation (absolute) that the supplemental test was successful. Subsequent review by the licensee and inspector of absolute method results during a previous IPCLRT supplemental test revealed that the relatively poor accuracy of the pressure instrumentation did not give high confidence in that method for short time period measurements such as the length of a supplemental test. Based on that review, the licensee decided to run a second IPCLRT.

It should be noted that the absolute method for the initial IPCLRT yielded results which satisfied 10 CFR Part 50, Appendix J, acceptance criteria. The measured leak rate at the upper 95% confidence level was 0.5099 compared to the Appendix J limit of 0.9000 and the leak rate measured during the supplemental test (1.2122) was between the upper and lower Appendix J limits of 1.4004 and 0.8004 respectively.

(2) Second IPCLRT - May 6 - 7, 1980

The second IPCLRT was conducted over an 8 hour and 20 minute interval. The supplemental test lasted 5 hours. Both the licensee and inspector used the absolute method to evaluate the test data. Confidence in this approach for short time frames was increased by the installation of 2 high precision pressure instruments for the second test. Close agreement between the inspector's and licensee's leak rate calculations are indicated in the following summary (units are in weight percent per day):

Measurement	Licensee	Inspector
Leak rate measured during IPCLRT	0.6324	0.6325
Leak rate measured during IPCLRT at upper 95% confidence level	0.6619	0.6605
Leak rate measured during supplemental test (Induced leak rate was 0.6254)	1.0063	1.0075

As the above data indicates, the second IPCLRT yielded results which satisfied 10 CFR 50, Appendix J, acceptance criteria. The highest measured leak rate at the upper 95% confidence level was 0.6619 compared to the Appendix J limit of 0.9000 and the leak rates measured during the supplemental test (1.0063 and 1.0075) were between the upper and lower Appendix J limits of 1.5578 and 0.9859 respectively.

No items of noncompliance or deviations were identified.

f. <u>Criteria for Reduced Duration Test</u>

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

4. <u>Local Leak Rate Testing</u>

The inspectors reviewed selected aspects of the local leak rate test program to determine if tests were adequate, if proper corrective actions were being taken on recurring Type B and C test failures, and if the total and individual as left Type B and C results satisfied limits of Appendix J and the Technical Specifications. Inspector findings in these areas were as follows:

a. <u>Test Adequacy</u>

The licensee sometimes conducts tests of less than a minute in duration as compared to an N274 suggested duration of 15 minutes. The inspectors stated that although the N274 value is not a legal requirement, it appeared that tests should be conducted for several minutes. The licensee agreed to consider ways to enlarge the air supply volume for tests in order to lengthen the test duration.

The licensee stated that the correction factors needed for the local leak rate tests performed by the rotameter method had been missed initially. The licensee stated that these correction factors would be applied to the rotameter test results prior to final submittal of the local leak rate results. It is recognized that the temperature correction factor used will be 1 (one), which is conservative. The licensee also stated that they will review this matter to determine if a method is needed to account for the use of correction factors.

This is an unresolved Item (50-263/80-06-02) pending completion of the licensees review and any other related actions related to these two matters.

b. Recurring Type B and C Test Failures

The inspectors' review of historical test data on Type B and C components revealed that several valves have experienced excessive leakage on more than one occasion. Although dirt and scale appeared to be the cause for several failures, the recurring test failures did not always involve the same cause. The valves reviewed in the most detail were HPCI-9 and RCIC-9 (check valves in turbine steam exhaust to torus) and AO-86A (main steam isolation valve). The latest corrective actions on these valves appeared to be proper to give confidence that they will remain in good condition as leakage barriers during the upcoming outage. In other words, at this time there does not appear to be a need for increased Type C surveillance on these valves; however, should these valves fail their Type C tests during the next refueling outage, strong consideration should be given to decreasing the interval between surveillance tests until the leakage of these valves ceases to be a problem.

c. As-left Leak Rates

The individual and total Type B and C results satisfied limits of Appendix J and the Technical Specifications.

No items of noncompliance or deviations were identified.

5. Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain whether they are acceptable items, Items of Noncompliance, or Deviations. Unresolved Items disclosed during the inspection are discussed in Paragraphs 3.a. and 4.a.

6. Exit Interview

The inspector met with a licensee representative (denoted in Paragraph 1) at the conclusion of the inspection on May 7, 1980. The inspector summarized the purpose and the scope of the inspection and the findings.