NSP

NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

January 19, 1976

Mr Victor Stello, Director
Division of Operating Reactors
U S Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr Stello:

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Main Steam Isolation Valve Leakage and Closure Time

This report is submitted in accordance with paragraph 6.7.C.5 of the Appendix A Technical Specifications for the Monticello Nuclear Generating Plant. Paragraph 6.7.C.5 requires a report of main steam isolation valve (MSIV) leakage and closure times to be made 90 days after completion of MSIV leakage tests.

Table 1 is a summary of regularly scheduled MSIV surveillance testing at Monticello since our last report. Tests of automatic closure, closure times, partial exercising, and leakage testing are tabulated giving the number of valve tests conducted and number of discrepancies experienced. Table 2 is a detailed listing of the results of MSIV leakage tests conducted during the 1975 autumn outage. Leakage before and after maintenance is given along with a summary of maintenance performed. Table 3 is a detailed listing of results of regularly scheduled MSIV timing tests at Monticello since our last report.

Main Steam Isolation Valve Leakage Measurements

Three of the eight MSIV's tested during the 1975 autumn outage failed to meet the 11.5 scfh leakage limit established by the Monticello Technical Specifications. An additional valve was close to the limit. As found leakages were:

AO-2-80A	21.87 scfh
AO-2-86A	24.95 scfh
AO-2-80C	10.85 scfh
AO-2-86C	33.26 scfh

Initial rotameter measurements showed the inboard "C" MSIV, AO-2-80C, to be below the acceptance criteria. But these results were questionable since the outboard valve leaked excessively. Therefore, AO-2-80C was also disassembled and repaired.

Upon disassembly of the valves, inspection revealed no apparent cause for the leakage though very small scratches were found on the pilot valve seats. These scratches were probably caused by valve closure on scale accumulations on the seats.

The pilot and main poppet seats were cleaned and lapped. The valve pairs were tested and each set was satisfactorily leak tested with essentially zero leakage.

In two of the four main steam lines, both of the isolation valves required repairs. Total steam line leakage, however, based upon the sum of the maximum possible leakage through each of the four steam lines amounted to only 39.37 scfh. This is less than the total leakage acceptance criteria of 46 scfh included in the Technical Specifications. Total leakage assuming the worst case single failure of an MSIV to close would have been less than 61.8 scfh (13.5% L_T). The leaking valves did not, therefore, pose a significant hazard to the health and safety of the public and would have performed their intended function in the event of a loss of coolant accident.

MSIV Closure and Exercise Tests

There were no failures experienced in MSIV exercise tests or closure timing tests during this period. The modifications made to the MSIV air operators described in our report dated July 9, 1974 have corrected all problems initially experienced with the Automatic Valve Corporation air operators installed in 1973.

No further instances of yoke rod binding or inadequate dashpot oil have been encountered. In 1974 the operating assembly of MSIV 2-80A was rotated about the shaft axis approximately 45° to align its guide rollers with the vertical. This valve has performed satisfactorily. MSIV 2-80D, which was also originally installed canted along its axis, will be similarly rotated the next time it must be disassembled for maintenance.

A comprehensive formal preventive maintenance program has been placed into effect covering the MSIV's. We believe that adherence to this program in combination with the modifications made during the 1973 and 1974 refueling outages have corrected previous problems with unreliable operation and closure time drift. Although progress has also been made in improving MSIV leak tightness, maintenance will continue to be required at regular intervals to meet the stringent leakage acceptance criterion.

Yours very truly,

L. O. Mayer

L O Mayer, PE
Manager of Nuclear Support Services

LOM/DMM/ak

cc: J G Keppler
G Charnoff
Minnesota Pollution Control Agency
Attn: J W Ferman

Attachments

TABLE 1

Main Steam Isolation Valve Surveillance Testing
Requirements and Summary of Results (7/1/74 - 12/31/75)

Surveillance Test	Frequency	No. of Valve Tests Performed	No. of Test Discrepancies
MSIV Local Leak Rate Test (TS 4.7.A.2.e)	Each Operating Cycle	8	3
Test of simulated automatic closure (TS 4.7.D.1.a)	Each Operating Cycle	8	0
Trip test and measurement of closure times (TS 4.7.D.1.c (2))	Quarterly	56	0
Partial closure and reopening MSIV exercise (TS 4.7.D.2)	Weekly	656	0

Manufacturer, Atwood and Morrill Company, Salem, Massachusetts
Vendor Drawing No. 20786-H
18" - "Y" Globe Valve
Cast Carbon Steel - Body and Internals
Butt Weld Ends
Stellite Trim
Air Operators: Automatic Valve Corporation C-5157

TABLE 2

Results of Main Steam Isolation Valve Leakage Tests
Conducted During 1975 Autumn Outage

Valve Identification	Leak Rate (SCFH) @ 25 PSIG		Summary of Maintenance Performed to Improve Leak Tightness
	As Found	As Left	
2-80A	21.87	0	Main and pilot poppets cleaned and lapped.
2-86A	24.95	0	Main and pilot poppets cleaned and lapped.
2-80B	4.45	4.45	None
2-86B	8.65	8.65	None
2-80C	10.85*	0	Main and pilot poppets cleaned and lapped.
2-86C	33.26	0	Main and pilot poppets cleaned and lapped.
2-80D	2.20	2.20	None
2-86D	9.98	9.98	None

* Although leakage was within acceptable limits, maintenance was performed to improve leak tightness.

TABLE 3

Results of Main Steam Isolation Valve
Quarterly Timing Tests (7/1/74 - 12/31/75)

	Time to Close in Seconds (3-5 seconds acceptable)							
Date	2-80A	2-80B	2-80C	2-80D	2-86A	2-86B	2-86C	2-86D
8/30/74	4.3	3.8	3.9	4.1	4.3	3.9	4.1	4.2
11/8/74	4.0	3.8	3.8	3.7	4.5	4.0	3.8	4.0
2/7/75	4.0	4.0	4.0	4.0	4.0	3.9	4.2	3.9
5/15/75	4.4	4.0	4.4	4.5	4.4	4.4	4.8	4.5
8/17/75	4.2	4.4	4.2	4.2	4.8	4.6	4.8	4.4
9/11/75	4.0	3.9	4.1	3.9	4.2	4.1	4.5	3.9
11/19/75	4.3	4.2	4.2	4.2	4.2	4.2	4.4	4.2

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TO: Mr Stello	ORIG 3 signed	CC	OTHER	SENT NRC PDR XX SENT LOCAL PDR XX		
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DESCRIPTION:
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ENCLOSURES:
Info concerning main steam isolation valve leakage .....(40 cys encl rec'd)

PLANT NAME: Monticello

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