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TO: J. F. O'Leary			ORIG 1	CC 39	OTHER	SENT AEC PDR x SENT LOCAL PDR x		
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DESCRIPTION:

Ltr furnishing info re Report of Main Steam Isolation Valve Performace dtd 12-28-72!... w/attached Tables I, II & III.....

ENCLOSURES:

ACKNOWLEDGED

DO NOT REMOVE

PLANT NAME: Monticello

FOR ACTION/INFORMATION 7-3-73 LB

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BOYD	✓SHAO		MAIGRET (L)	DUBE
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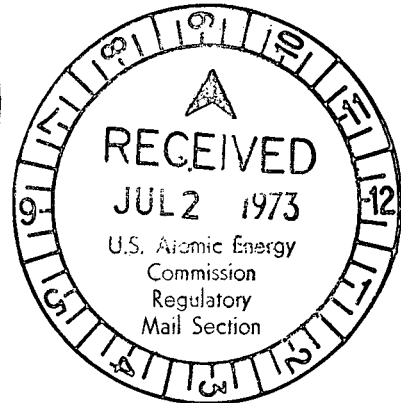
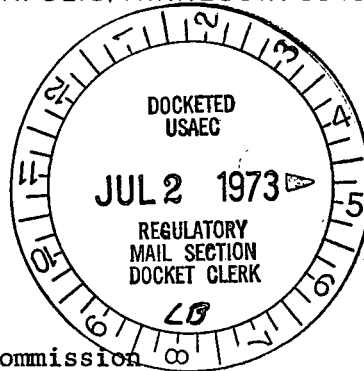
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R. DIGGS 7-3-73		

NSP**NORTHERN STATES POWER COMPANY**

MINNEAPOLIS, MINNESOTA 55401

June 28, 1973

Mr. J F O'Leary, Director
Directorate of Licensing
United States Atomic Energy Commission
Washington, D C 20545



Dear Mr. O'Leary:

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 Appendix A, Technical Specifications, of the Provisional Operating License 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. This particular submittal will also contain information necessary to complete our earlier "Report of Main Steam Isolation Valve Performance" dated December 28, 1972.

Table I is a summary of regularly scheduled MSIV surveillance testing at Monticello since the date of initial commercial service. Tests of automatic closure, time to close, partial exercising and local leak rate testing are tabulated listing number of valve tests conducted and number of discrepancies experienced. Table II is a detailed listing of the results of the MSIV local leak rate tests conducted during the 1973 spring outage. Leakages before and after maintenance are tabulated along with a summary of maintenance performed. Table III is a detailed listing of results of regularly scheduled MSIV timing tests at Monticello since the date of initial commercial service. Future reports will contain only results of closure tests conducted since the date of the previous report.

Main Steam Isolation Valve Leakage Measurements

Four of the eight MSIV's tested failed to meet the 11.5 scfh leakage limit established by the Monticello Technical Specifications. These valves were disassembled and inspected for pilot and main valve disc and seat damage. No physical damage was found. Stellite was deposited on the main seat of

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MSIV 2-86A to cover base metal that had been exposed during repairs in January, 1972. All four valve discs were machined and main seats and pilot seats were lapped smooth. During the lapping process indications of slight main seat warpage were observed. Following these repairs all valves demonstrated satisfactory leak tightness.

Two of the valves requiring repair also required maintenance in January, 1972. Operating experience to date seems to indicate that some valve repairs may be necessary at every annual outage to meet the somewhat conservative Technical Specification leakage limits. We believe that the experience gained in MSIV maintenance techniques over the past two years has begun to show results, however, and that steady improvements in MSIV leak tightness will result.

Summary of MSIV Leakage Experience From Other Facilities

Programs being conducted at other boiling water reactor facilities to reduce MSIV leakage have been closely followed. Paragraph 4.7.A of the Bases for the Monticello Technical Specifications requires a report of this evaluation to be made to the Commission.

Methods proposed to date generally involve one of the following schemes:

- a. Water sealing system
- b. Gas sealing system
- c. Bleed off between MSIV's to standby gas treatment system
- d. Installation of third MSIV in each steam line

No currently operating BWR is known to have installed a sealing system to minimize MSIV leakage. Several plants in the construction stage have agreed to design and install such a system, but utility or AEC acceptance of a specific design apparently has not yet taken place.

We will continue to follow developments in this area but believe that it will be several years before sufficient information is available on a variety of MSIV sealing systems to complete a comprehensive evaluation of their performance. When such an evaluation is possible, plant modifications will be considered, if necessary, to meet the objectives of 10CFR100.

MSIV Closure Time Tests

Two regularly scheduled MSIV closure timing tests were conducted since the December 28, 1972 report. All valve closure times were within the 3 to 5 second limit. During the 1973 spring outage new air operators were installed on all eight MSIV's. These operators utilize poppet type valves which are not as susceptible to binding as the spool type valves used on the original

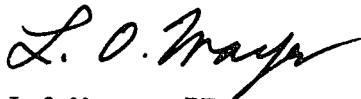
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operators. This modification is described in detail in our letter of June 27, 1973 to D J Skovholt, Assistant Director for Operating Reactors, concerning MSIV reliability.

As indicated in Table I, one exercise test discrepancy has been experienced with the new air operators. This failure resulted in MSIV over travel during the first routine MSIV exercise closure at the conclusion of the 1973 spring outage. Replacement of the AC test solenoid on the affected operator was required. Additional operating data is being collected on the reliability of the new MSIV operators and a substantial improvement in MSIV performance is expected after the initial break in period.

Yours very truly,



L O Mayer, PE
Director of Nuclear Support Services

LOM/DMM/br

cc: B H Grier
G Charnoff
Minnesota Pollution Control Agency
Attn. K Dzugan

TABLE I

Main Steam Isolation Valve Surveillance Testing
Requirements and Summary of Results (7/1/71 - 6/23/73)

Surveillance Test	Frequency	No. of Valve Tests Performed	No. of Test Discrepancies
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	72 8*	3 0*
Partial closure and reopening MSIV exercise (TS 4.7.D.2)	Weekly	552 40*	1 1*
MSIV Local Leak Rate Test (TS 4.7.A.2.e)	Each operating cycle	16	8

* Indicates testing done following installation of new MSIV air operators.

TABLE II

Results of Main Steam Isolation Valve Leakage Tests
Conducted During 1973 Spring Outage

Valve Identification	Leak Rate (SCFH) @ 25 psig		Summary of Maintenance Performed to Improve Leak Tightness
	As Found	As Left	
2-80A	1130	1.63*	Truing cut made on main disc. Pilot seat and main seat lapped.
2-86A	18.3	*	Truing cut made on main disc. Stellite deposited on main disc. Pilot seat and main seat lapped.
2-80B	0	0	None
2-86B	26.6	0	Truing cut made on main disc. Pilot seat and main seat lapped.
2-80C	33.3	0	Truing cut made on main disc. Pilot seat and main seat lapped.
2-86C	4.99	4.99	None
2-80D	6.65	6.65	None
2-86D	1.66	1.66	None

* Indicates that combined inboard/outboard leak rate for valves 2-80A and 2-86A was determined.

TABLE 1II

Results of Main Steam Isolation Valve
Quarterly Timing Tests (7/1/71 - 6/23/73)

	Valve Identification							
	2-80A	2-86A	2-80B	2-86B	2-80C	2-86C	2-80D	2-86D
8/26/71	3.8	3.0	3.2	3.2	3.8	2.0	3.6	3.5
11/13/71	4.2	3.4	20.2	3.5	3.9	1.2	4.3	3.9
1/22/72	3.9	4.0	4.1	4.0	4.0	4.2	3.9	4.0
5/12/72	3.7	4.8	4.5	3.2	4.0	3.2	4.3	3.5
6/3/72	4.0	4.7	4.0	3.6	4.0	4.2	3.9	3.7
7/16/72	3.8	4.9	4.4	3.4	4.3	4.4	4.0	4.3
10/15/72	3.4	5.0	4.7	3.8	3.8	5.0	4.3	4.1
12/14/72	4.0	5.0	4.2	3.6	3.9	4.8	3.9	3.7
3/3/73	3.6	4.2	4.6	4.2	4.0	4.0	3.9	3.3
5/12/73	4.2	4.6	4.2	4.2	4.6	4.9	4.0	4.5