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August 16, 2017

L-MT-17-061  
10 CFR 50.73

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Monticello Nuclear Generating Plant  
Docket No. 50-263  
Renewed Facility Operating License No. DPR-22

LER 2017-004-00 "High Pressure Coolant Injection Steam Stop Valve Failed to Open During Test"

Enclosed is the Monticello Nuclear Generating Plant (MNGP) Licensee Event Report (LER) 2017-004-00, "High Pressure Coolant Injection Steam Stop Valve Failed to Open During Test." This condition is reportable to the NRC in accordance with 10 CFR 50.73(a)(2)(v)(D), as an event or condition that could have prevented fulfillment of a safety function.

Summary of Commitments

This letter makes no new commitments and no revisions to existing commitments.



*Kent Scott for P. Gardner*

Peter A. Gardner  
Site Vice President, Monticello Nuclear Generating Plant  
Northern States Power Company – Minnesota

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, Monticello Nuclear Generating Plant, USNRC  
Resident Inspector, Monticello Nuclear Generating Plant, USNRC



**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Monticello Nuclear Generating Plant	<b>2. DOCKET NUMBER</b> 05000-263	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
High Pressure Coolant Injection Steam Stop Valve Failed to Open During Test

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	19	2017	2017	- 004	- 00	08	16	2017	FACILITY NAME	DOCKET NUMBER
										05000
										05000

**9. OPERATING MODE**      **11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:** (Check all that apply)

1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
100	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

LICENSEE CONTACT Stephen Sollom, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 763-295-1611
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
D	BJ	SHV	A391	Y					

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH:      DAY:      YEAR:
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**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)**

On June 19, 2017 following a planned High Pressure Coolant Injection (HPCI) system maintenance, a HPCI start attempt was performed per the quarterly test procedure. HPCI failed to start during the test due to the steam stop valve HO-7 not opening caused by HO-7 oil relay not functioning properly. Since the component was not the subject of the maintenance activity, the HPCI failure was reported to the NRC under Emergency Notification System, Event Number 52814.

The HO-7 oil relay was repaired and the HPCI system was returned to operable status at 13:30 on June 23, 2017.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Monticello Nuclear Generating Plant	05000-263	2017	004	- 00

**NARRATIVE**

**EVENT DESCRIPTION**

Plant Conditions: Mode 1, 100% Power

On June 19, 2017, following planned High Pressure Coolant Injection (HPCI) system [BJ] maintenance, a HPCI start attempt was performed per the quarterly test procedure. HPCI failed to start during the test due to the steam stop valve [SHV] HO-7 not opening caused by the HO-7 oil relay (manufacture Schutle and Koerting (S&K) Part Number 69-XC-103) not functioning properly. Since the component was not the subject of the maintenance activity, the HPCI failure was reported to the NRC under Emergency Notification System, Event Number 52814.

HO-7, when closed, blocks reactor steam from reaching the HPCI turbine and thus when HO-7 is closed, HPCI cannot run. Valve HO-7 was last validated to open properly on June 15, 2017 while performing the Operations Weekly Control Room Checklist on the night shift. The HO-7 oil relay was repaired and the HPCI system returned to operable status at 13:30 on June 23, 2017.

**EVENT ANALYSIS**

The event was determined to be reportable in accordance with 10 CFR 50.73 (a)(2)(V)(D), "event or condition that could have prevented fulfillment of a safety function." This event is classified as a safety system functional failure.

**SAFETY SIGNIFICANCE**

There were minimal safety consequences associated with the condition. The condition existed for approximately 8 days (June 15-June 23), which was less than the Technical Specification limiting condition for operation of 14 days, and the Reactor Core Isolation Cooling system and Automatic Depressurization system were operable the entire period that HPCI was inoperable.

**CAUSE**

As found visual inspections revealed that the HO-7 oil relay housing internal bore where the piston rings ride was not smooth. The non-smooth internal bore contributed to piston ring oil leakage. There are two piston rings and both were found to be pitted. One piston ring was pitted significantly and one piston ring was minimally pitted. The piston ring that was more pitted also had ring edge wear and was replaced. The second piston ring was determined to provide an acceptable fit and was not replaced.



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The oil relay piston body and housing were cleaned and a single (one of two) piston ring, spring and gasket from the relay were replaced with new parts on June 21, 2017.

The direct cause of the HPCI failed start was the steam stop valve HO-7 not opening due to HO-7 oil relay not shuttling. The oil relay did not shuttle because of leakage past a piston ring resulting in reduced relay stroking force. The piston ring pitting and non-smooth relay internal bore surfaces are due to age related wear that occurred over the life of the HPCI turbine. Thus the direct causes are due to the piston ring not uniformly sealing resulting in reduced force and the wear particles/tight clearances causing the relay valve to not shuttle.

The apparent cause of the pitted piston rings and a non-smooth bore in the HO-7 oil relay is due to the lack of sufficient detail in the preventive maintenance procedure. HO-7 oil relay maintenance was performed in 2013. It was determined that the preventative maintenance procedure performed in 2013 lacked sufficient detail to ensure that adequate preventative maintenance was performed on the oil relay.

A contributing cause was a lack of trending information on HO-7 performance. Monitoring the opening times of the HO-7 valve may have provided some insight into the performance of the HO-7 oil relay.

**CORRECTIVE ACTION**

The immediate corrective action was to clean the oil relay piston body and housing, and a single (one of two) piston ring, spring and gasket from the relay were replaced with new parts on June 21, 2017.

Long term corrective actions include the following:

- Provide additional steps in the HPCI preventive maintenance procedure to perform more direct inspection and maintenance of the HO-7 valve and associated oil relay components.
- Perform trending of HO-7 valve opening times to provide insight into the performance of the HO-7 oil relay.

**PREVIOUS SIMILAR EVENTS**

There were no previous similar licensee event reports in the past three years.

**ADDITIONAL INFORMATION**

The Institute of Electrical and Electronics Engineer codes for equipment are denoted by [XX].