



Monticello Nuclear Generating Plant
2807 W County Road 75
Monticello, MN 55362

March 14, 2014

L-MT-14-026
10 CFR 50.73

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

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

LER 2014-001 "Primary System Leakage Found in Recirculation Pump Upper Seal Heat Exchanger"

A Licensee Event Report (LER) for this occurrence is attached.

Summary of Commitments

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

A handwritten signature in cursive script, appearing to read 'Karen D. Fili', followed by the date '3/14/14'.

Karen D. Fili
Site Vice President, Monticello Nuclear Generating Plant
Northern States Power Company-Minnesota

Enclosure

cc: Regional Administrator, Region III, USNRC
Project Manager, Monticello Nuclear Generating Plant, USNRC
Resident Inspector, Monticello Nuclear Generating Plant, USNRC
Minnesota Department of Commerce

**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, NEOF-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

Monticello Nuclear Generating Plant

2. DOCKET NUMBER

05000- 263

3. PAGE

1 OF 3

4. TITLE

Primary System Leakage Found in Recirculation Pump Upper Seal Heat Exchanger

5. EVENT DATE

MONTH	DAY	YEAR
01	17	2014

6. LER NUMBER

YEAR	SEQUENTIAL NUMBER	REV NO.
2014	001	00

7. REPORT DATE

MONTH	DAY	YEAR
03	14	2014

8. OTHER FACILITIES INVOLVED

FACILITY NAME	DOCKET NUMBER
	05000
FACILITY NAME	DOCKET NUMBER
	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)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
10. POWER LEVEL 91%	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(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)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER**LICENSEE CONTACT**

Lenny Sueper, Senior Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

612-330-6917

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	AD	HX	Sulzer	Y	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO**15. EXPECTED SUBMISSION DATE**

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 17, 2014, leakage into the Reactor Building Closed Cooling Water (RBCCW) System was determined to be Reactor Coolant Pressure Boundary (RCPB) leakage as identified by the Monticello Nuclear Generating Plant (MNGP) Technical Specifications (TS). Based on this, the TS limiting condition for operation was not met and a plant shutdown was required. The plant shutdown commenced at 2029 on January 17, 2014. There was no radioactive release from the plant. The plant was shut down without incident to repair the source of the inleakage.

The apparent cause for the RCPB leak was the lack of an established maintenance strategy in place to periodically check the condition of the heat exchanger or replace it. A crack formed in the #12 Recirculation Pump Upper Seal Heat Exchanger coil due to intergranular stress corrosion cracking.

The leaking # 12 Recirculation Pump Upper Seal Heat Exchanger was removed and the system was modified to operate without this heat exchanger by utilizing the excess capacity of the #12 Recirculation Pump Lower Seal Heat Exchanger.

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

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NARRATIVE**EVENT DESCRIPTION**

On January 4, 2014, a step change increase in the Reactor Building Closed Cooling Water (RBCCW) [CC] surge tank level was noted. On January 17, 2014, the source of the inleakage was determined to be an un-isolable Reactor Coolant Pressure Boundary (RCPB) leak. As required by the Monticello Nuclear Generating Plant (MNGP) Technical Specifications (TS), RCPB leakage does not meet the TS 3.4.4 (RCS Operational Leakage) limiting condition for operation (LCO) and a TS required shutdown was performed. The plant shutdown commenced at 2029 on January 17, 2014, and was completed without incident.

The source of the inleakage into the RBCCW System was determined to be from the Reactor Recirculation System [AD] through a coil failure in the #12 Reactor Recirculation Pump Upper Seal Heat Exchanger [HX]. Following the shutdown the #12 Reactor Recirculation Pump Upper Seal Heat Exchanger leakage rate was measured to be 0.215 gpm.

The cause of the inleakage was subsequently corrected by performing a modification that removed the #12 Reactor Recirculation Pump Upper Seal Heat Exchanger and modifying the system to operate without this heat exchanger by using the excess capacity of the #12 Reactor Recirculation Pump Lower Seal Heat Exchanger.

EVENT ANALYSIS

This event is reportable in accordance with 10 CFR 50.73(a)(2)(ii)(A) as an event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded, since a leak of a RCPB component occurred.

This event is also reportable in accordance with 10 CFR 50.73(a)(2)(i)(A) as the plant completed a shutdown as required by the plant's TS. Finally, this event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition which is prohibited by the plant's TS, since a leak of the RCPB existed for a time period that is prohibited by the MNGP TS.

SAFETY SIGNIFICANCE

The leak of the #12 Reactor Recirculation Pump Upper Seal Heat Exchanger resulted in a small, un-isolable RCPB leak, which required a controlled plant shutdown. There was no radioactive release from the plant.

CAUSE

The apparent cause for the RCPB leak was that there was no established maintenance strategy in place to periodically check the condition of the heat exchanger or replace it. A failure analysis performed indicated that the heat exchanger leaked due to the slow formation of a crack on the external surface of the stainless steel coil that was not detected prior to the leak occurring. RBCCW chemistry constituents (including

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NARRATIVE

chlorides) concentrated on the coil surface along with scale due to unrecognized boiling occurring in the lower region of the #12 Reactor Recirculation Pump Upper Seal Heat Exchanger coil. The crack formed in the coil due to the unexpected high concentration of chlorides that formed on the coil surface, combined with a susceptible material and stress, resulting in intergranular stress corrosion cracking (IGSCC).

CORRECTIVE ACTION

The leaking #12 Reactor Recirculation Pump Upper Seal Heat Exchanger was removed and the system was modified to operate without this heat exchanger by using excess capacity in the #12 Reactor Recirculation Pump Lower Pump Seal Heat Exchanger. Based on the extent of condition review, a similar proactive modification to bypass the #11 Reactor Recirculation Pump Upper Seal Heat Exchanger was performed without physical removal of the heat exchanger. In addition, the Recirculation System Sample Cooler was replaced as this heat exchanger was determined to be vulnerable to the conditions that caused the #12 Reactor Recirculation Pump Upper Seal Heat Exchanger to leak.

PREVIOUS SIMILAR EVENTS

There were no previous similar events reported.

ADDITIONAL INFORMATION

Energy industry identification system (EIIIS) codes are identified in the text within brackets [xx].