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10 CFR 50.73

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

Prairie Island Nuclear Generating Plant Unit 1
Docket 50-282
Renewed License No. DPR-42

Licensee Event Report (LER) 50-282/2015-001-00, 14 Fan Coil Unit Leak

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), encloses Licensee Event Report (LER) 50-282/2015-001-00, 14 Fan Coil Unit (FCU) Leak.

Summary of Commitments

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

Scott Sharp FOR Kevin Davison

Kevin Davison
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company – Minnesota

Enclosure (1)

cc: Administrator, Region III, USNRC
Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
Department of Commerce, State of Minnesota

ENCLOSURE 1

LICENSEE EVENT REPORT 50-282/2015-001-00

4 Pages Follow

NRC FORM 366 (01-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

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 Records and FOIA/Privacy Service 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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Prairie Island Nuclear Generating Plant Unit 1	05000 - 282	1 OF 4

4. TITLE
Containment Fan Coil Unit Leak

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
11	20	2014	2015	– 001	– 00	1	16	2015		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE
Mode 3

10. POWER LEVEL
0%

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☑ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Frank Sienczak	651-267-1740

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

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 November 20, 2014, at approximately 1022 CST, during Containment closeout inspection, a Cooling Water (CL) Leak was identified on the lower face on the northwest corner on 14 Containment Fan Coil Unit (FCU) gasket. Unit 1 Containment was declared inoperable for a loss of Containment integrity, that required entry into Technical Specifications (TS) LCO 3.6.1 Condition A, Containment inoperable, in Modes 1, 2, 3, and 4. This condition is reportable under 10 CFR 50.73(a)(2)(v)(C), Event or Condition that Could Have Prevented Fulfillment of a Safety Function to control the release of radioactive material.

The causal evaluation determined that the 45 ft-lbs torque value chosen by the Root Cause Evaluation (RCE) Team using a risk-based approach resulted in allowable torque margin to stop leakage post-maintenance but did not prevent leakage from occurring on 14 Containment FCU.

NARRATIVE

During the Unit 1 Refueling Outage, Containment closeout inspection it was discovered that the lower face on the northwest corner was leaking on 14 Containment Fan Coil Unit (FCU)[1]. A sample was taken from the leaking water and results indicated that the hardness values are consistent with river water.

The FCU is considered part of the Containment boundary. The leak caused a breach to this boundary and a loss of a fission product barrier, that could result in radioactive release from the Containment into the Cooling Water (CL) system, and resulting in off-site dose to the public during a Design Basis Accident (DBA).

On November 20, 2014, at 1022 CST, Prairie Island Nuclear Generating Plant (PINGP) declared Unit 1 Containment inoperable and entered Technical Specifications (Tech Specs) Limiting Condition for Operation (LCO) 3.6.1 Condition A, for Containment inoperable in Modes 1, 2, 3, and 4.

At the time of the Containment inoperability, Unit 1 was in Mode 3 (Hot Standby) following a Refueling Outage. Tech Specs LCO 3.6.1, Condition A, states to "Restore Containment to OPERABLE Status" within one (1) hour.

Operations immediate actions were taken to isolate the CL supply to and return from 14 FCU, open the associated Motor Valve (MV), and pressurize the space between the CL outlet motor valves to greater than 46 psig per procedure C35, AOP4 "Cooling Water Leakage in Containment". Isolation was completed within 1 hour from the initial confirmation of the leak and TS 3.6.1 Condition A was exited at 1109 on November 20, 2014. This restored Containment to an operable status. A Work Request (WR) was approved to repair 14 Containment FCU lower northwest corner gasket leak. The header bolts were re-torqued per the WR and Preventative Maintenance (PM) procedure.

At 1240 on November 20, 2014, Operations invoked Tech Specs LCO 3.0.5, this allows returning 14 Containment FCU to service under administrative control solely to perform testing required to demonstrate the operability of the Containment.

At 1314 on November 20, 2014, Operations reported PMT for the 14 FCU northwest corner flange was Satisfactory. No leakage was observed.

This event is reportable under 50.73(a)(2)(v)(C), as an event or condition that could have prevented fulfillment of a safety function of structures or systems that are needed to control the release of radioactive material.

[1] EIIS System Code - FCU

EVENT ANALYSIS

The Containment Cooling System consists of four fan-coil units located in the Reactor Containment Vessel. These will re-circulate and cool the Reactor Containment Vessel atmosphere. The heat sink for the fan coils is provided by the containment and auxiliary building chilled water system or by the cooling water system. During emergency situations the heat sink for the fan coils is provided by the cooling water system.

Fan coil units inside containment are provided with water from the plant cooling water system when they are operating in their safeguards mode. Portions of the cooling water system serving the fan coil units are designed to tolerate a single active failure, designed as Class I seismic, and are missile protected. With the exception of the initial hours after an accident, Cooling Water System pressure exceeds postulated containment accident pressure. Thus, there is minimal potential for leakage of radioactive material out of the containment via the cooling water system. Any leakage would be detected by the Radiation Monitors and the affected FCU isolated as discussed below.

In the event of an accident, the cooling water supply and return isolation valves position to full open to satisfy their safeguards function. In the event of a fan coil unit or associated piping rupture the containment remote manual motor operated isolation valves would be closed to prevent the entry of non-borated water into containment. Pressure against the closed isolation valves is maintained by equalizing lines. The water supply for this "seal" is provided by the cooling water system pumps (3 motor driven and 2 diesel driven) which take suction from the Mississippi River.

The Containment Air Cooling System is sized such that any three fan coil units will provide adequate heat removal capacity from the Reactor Containment during normal and full-power operation to maintain interior air temperatures below the maximum temperature allowable at any component, and to obtain temperatures below 104 degrees Fahrenheit (F) in accessible areas during hot standby operation. The fan coil units are also used for emergency cooling under post-accident conditions.

On November 20, 2014, at 1022 CST, Prairie Island Nuclear Generating Plant (PINGP) declared Unit 1 Containment inoperable and entered Technical Specifications (Tech Specs) Limiting Condition for Operation (LCO) 3.6.1 Condition A, for Containment inoperable in Modes 1, 2, 3, and 4. Immediate actions were taken to isolate the FCU and it was isolated within 1 hour from the initial confirmation of the leak and TS 3.6.1 Condition A was exited. This restored Containment to an operable status.

SAFETY SIGNIFICANCE

The safety significance for this event was minimal, as the CL leak was 20 drops/minutes, isolated within 1 hour from the initial confirmation of the leak and the Reactor was shutdown (Mode 3). There was potential radiological impact because of the loss of Containment integrity. The FCU is considered part of the Containment boundary. The leak caused a breach to this boundary and a loss of a fission

product barrier, which could result in radioactive release from Containment into the CL system, and resulting in off-site dose to the public during a Design Basis Accident. Therefore, since the leak was minimal, the health and safety of the public were not affected.

CAUSE

The causal evaluation for this event (14 Containment FCU gasket leak), determined that the 45 ft-lbs torque value chosen by the Root Cause Evaluation (RCE) Team, from the 23 Containment FCU gasket leak, using a risk-based approach resulted in allowable torque margin to stop leakage post-maintenance, but did not prevent it from occurring on 14 Containment FCU.

CORRECTIVE ACTION

Reopen RCE 01431285 "23 FCU Lower Northeast Corner Gasket Leaking" and revise Corrective Action to Preclude Repetition CAPR-22 in order to change the 45 ft-lbs specified in the Maintenance, Preventative Maintenance (PM) 3154-4 for all Containment FCUs to 55 ft-lbs for header flange gasket torque.

PREVIOUS SIMILAR EVENTS

LER 50-306/2014-002-00, 23 Fan Coil Unit Lower Northeast Face Corner Gasket Leaking.
The 14 Containment FCU gasket leak is similar to the 23 Containment FCU header gasket leaks. The revised torqueing value of 45 ft-lbs under the CAPR was ineffective, that caused a leak to occur on 14 Containment FCU gasket.