Northern States Power Company

Prairie Island Nuclear Generating Plant

1717 Wakonade Dr. East
Welch, Minnesota 55089

October 16, 1995

10 CFR Part 50
Section 50.73

U S Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

Determination That Cooling Water Pump
Discharge Check Valves Are Not Being Tested Adequately

The Licensee Event Report for this occurrence is attached. In the report, we made no new NRC commitments.

Please contact us if you require additional information related to this event.

Jack Leveille

for Roger O Anderson
Director
Licensing and Management Issues

c: Regional Administrator - Region III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC
Kris Sanda, State of Minnesota

Attachment

200090

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Prairie Island Nuclear Generating Plant U1	05000 282	1 OF 3

TITLE (4) Determination That Cooling Water Pump Discharge Check Valves Are Not Being Tested Adequately

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Prairie Island U2	05000 306
9	15	95	95	-- 12 --	00	10	16	95	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER
	20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Arne A Hunstad	612-388-1121

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Prairie Island has been performing an engineering self-assessment in connection with the Service Water System Operational Performance Inspection. Part of that self-assessment has been a comprehensive review of associated testing procedures. ASME Code Section XI requires closure testing of safety-related check valves. On September 15, 1995, it was determined that the acceptance criteria for testing of cooling water pump discharge check valves CL-43-1 and 2CL-43-1 are inadequate to prove closure of the valves.

During testing of No. 12 Diesel-driven Cooling Water Pump, each nonsafety-related motor-driven pump is stopped, allowing its associated spring-actuated check valve to close. Check valve closure is then verified by bleeding off the pressure upstream of the check valve through the pump's discharge pressure gauge manifold isolation valve and observing a pressure differential. Acceptance was based on an observed pressure differential of 10 psi or greater. Engineering review of this method showed that the pressure losses through the valves and tubing to the pressure gauge are, by themselves, greater than 10 psi. This renders the test results indeterminate.

EVENT DESCRIPTION

Prairie Island has been performing an engineering self-assessment in connection with the Service Water System Operational Performance Inspection (EIIS System Identifier: BI). Part of that self-assessment has been a comprehensive review of associated testing procedures. ASME Code Section XI requires closure testing of safety-related check valves. On September 15, 1995, it was determined that the acceptance criteria for testing of cooling water pump discharge check valves CL-43-1 and 2CL-43-1 are inadequate to positively confirm closure of the valves (EIIS Component Identifier: V).
The Prairie Island cooling water header is supplied by 5 pumps, 2 nonsafety-related and 3 safety-related. There are 2 check valves in series on the discharge of each of the 2 nonsafety-related motor-driven pumps. The outboard check valves CL-43-1 and 2CL-43-1 are boundary valves between safety-related and nonsafety-related portions of the cooling water header. Section XI requires demonstration quarterly that the check valves can travel to their closed position.

During testing of No. 12 Diesel-driven Cooling Water Pump, each nonsafety-related motor-driven pump is stopped, allowing its associated spring-actuated check valve to close. Check valve closure is then verified by bleeding off the pressure upstream of the check valve through the pump's discharge pressure gauge manifold isolation valve and observing a pressure differential. Acceptance was based on an observed pressure differential of 10 psi or greater. Engineering review of this method showed that the pressure losses through the valves and tubing to the pressure gauge are, by themselves, greater than 10 psi. This renders the test results indeterminate.

CAUSE OF THE EVENT

The cause of the event was a failure to sufficiently determine the exact conditions under which the acceptance criteria must be met to verify that the check valve obturator has moved to the closed position.

ANALYSIS OF THE EVENT

The event is reportable pursuant to 10CFR50.73(a)(2)(i)(B) since the check valve test method did not assure verification of valve closure.

An alternate testing method has shown the check valves are operable.

CORRECTIVE ACTION

Upon determination that the test method used was indeterminate with respect to verifying check valve closure, alternate testing methods were investigated. Acoustic diagnostic equipment was used to try to detect check valve closure upon stopping of the motor-driven pumps. The first test was inconclusive since the check valves close gently because the pump discharge manual valves are closed prior to stopping the pumps. A further test was performed leaving the discharge manual valves open and then stopping the pumps. The check

valves clearly closed, but the presence of significant hydraulic forces applied to the valves and piping indicate that routine testing in this manner is not prudent. An alternate test method will be developed for the next required test.

FAILED COMPONENT IDENTIFICATION

None.

PREVIOUS SIMILAR EVENTS

Earlier events identified as a result of service water system engineering self-assessment activities were reported as Unit 1 LER's 95-009 and 95-011.