NSP

Northern States Power Company

Monticello Nuclear Generating Plant
2807 West Hwy 75
Monticello, Minnesota 55362-9637

March 17,1999

10 CFR Part 50
Section 50.73

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

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

LER 99-001
HPCI High Steam Flow Isolation During Quarterly Surveillance Test

The Licensee Event Report for this occurrence is attached. This report contains no new NRC commitments.

Please contact Tom Parker at (612) 295-1014 if you require further information.

Byron Day

Byron Day
Plant Manager
Monticello Nuclear Generating Plant

c: Regional Administrator - III NRC
NRR Project Manager, NRC
Sr Resident Inspector, NRC
State of Minnesota, Attn: Steve Minn

Attachment

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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
MONTICELLO NUCLEAR GENERATING PLANT	05000 – 263	1 OF 4

TITLE (4)

HPCI High Steam Flow Isolation During Quarterly Surveillance Test

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 05000
02	15	99	99	-- 001 --	00	03	17	99	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
			20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)	100 %		20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)	✓	50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Tom Parker	612-295-1014

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)
NRC FORM 366

During the performance of the quarterly High Pressure Coolant Injection (HPCI) surveillance test, a high steam flow signal isolated the steam to the HPCI turbine. The surveillance test was terminated. The high steam flow signal was not caused by any piping integrity problems.

The cause of this event is an inadequate surveillance procedure. The surveillance procedure steps did not ensure that the igh steam flow setpoint would be avoided.

The surveillance procedure has been revised. Other procedures have been reviewed and changed as necessary. A means of identifying that steam flow is greater than the high steam flow setpoint will be investigated. Training on the lessons learned from this event will be provided to the engineering technical staff and operations personnel.

Description

At approximately 1515 on February 15, 1999 with the plant operating at 100% power, operations personnel started the High Pressure Coolant Injection[1] (HPCI) system for the quarterly surveillance test. Approximately 45 seconds later, the HPCI steam supply valves automatically closed in response to a high steam flow signal. The surveillance test was terminated. The high steam flow signal was not caused by any piping integrity problems.

Background Information

The HPCI system has a steam-turbine-driven pump[2]. Steam is supplied from the reactor and is controlled by a pump flow/turbine speed control system. Primary containment isolation logic will automatically close the HPCI steam supply valves after 45 seconds if a high steam flow setpoint is exceeded.

During the quarterly HPCI surveillance test, water is pumped from the condensate storage tank[3], through a test line, and back to the condensate storage tank. HPCI Test Return Flow valve, CV-3503,[4] is used to provide a variable flow resistance in the test line.

Causes

The cause of this event is an inadequate surveillance procedure.

HPCI system performance data indicate that required steam flow with CV-3503 positioned at 42% open, as called for by the surveillance procedure, is greater than the high steam flow setpoint. In this case, operators must reduce steam flow (by opening CV-3503 to reduce pump discharge pressure) within 45 seconds to prevent steam supply isolation. While the surveillance procedure directed that CV-3503 be opened to reduce high pump discharge pressures, it did not specify a time limit.

Operations personnel involved with the November 1998 surveillance test recommended to the system engineer that the initial position of CV-3503 be changed. The system engineer did not properly assess this recommendation and the supporting system performance data and did not change the surveillance procedure. Operations personnel did not follow through on their recommendation.

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[1] EIIS System Code: BJ
[2] EIIS Component Code: P
[3] EIIS System Code: BS
[4] EIIS Component Code: FCV

A contributing cause is that there is no direct indication that steam flow is greater than the high st.. am flow setpoint.

Analysis of Reportability

This report is being submitted per 10 CFR 50.73(a)(2)(iv). This high steam flow isolation was a valid automatic actuation of an engineering safety feature that was not part of a pre-planned sequence and, therefore, is reportable.

Safety Significance

When HPCI is in standby, CV-3503 is fully closed. The positioning of CV-3503 for the surveillance test has no effect on standby operation.

Pump discharge pressure and turbine steam flow required for injection into the reactor vessel at required flow rates over the required reactor pressure range are well below those experienced during the surveillance test. Therefore, the problem identified in this LER will not affect the design basis safety function of the HPCI system.

HPCI is one of nine alternate reactor pressure control systems referenced in the Emergency Operating Procedures. When used in this mode, the system configuration and operating procedure are similar to those used in the quarterly surveillance test. If an event had occurred where alternate pressure control was needed and HPCI tripped on high steam flow, one of the redundant systems could have performed the pressure control function.

For the above reasons, this event had no effect on the health and safety of the public.

Actions

1) The surveillance procedure has been revised to:
   a) open CV-3503 further, and
   b) provide operators with a time limit for decreasing high pump discharge pressures.
2) Other procedures where CV-3503 is used to provide variable flow resistance have been reviewed and changed as needed.
3) A means of identifying that steam flow is greater than the high steam flow setpoint will be investigated.
4) Training on the lessons learned from this event will be provided to the engineering technical staff and operations personnel.

Fa'' d Component Identification

None

Similar Events

Previous LERs involving high steam flow isolations: 94-017, 89-005, 87-007, 83-017, 83-014, AO 73-28

The causes of the these events were not the same as this event.