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June 17, 1991

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

One Pressurizer Safety Valve Lift Setpoint Found 2.5% Low During Test

The Licensee Event Report for this occurrence is attached.

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

Thomas M. Parker
Manager
Nuclear Support Services

c: Regional Administrator - Region III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC
MPCA
Attn: Dr J W Ferman

Attachment

9106240109 910617
FDR ADOCK 05000282
S FDR

5627/1

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATES TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PA-12WORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNIT 1

DOCKET NUMBER (2)

0 5 1 0 0 1 0 2 1 8 2 1 OF 0 4

PAGE (3)

TITLE (4)

One Pressurizer Safety Valve Lift Setpoint Found 2.5% Low During 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 NAMES

DOCKET NUMBER(S)

Prairie Island Unit 2

0 5 1 0 0 1 0 3 1 0 1 6

0 5 1 6 9 1 9 1

0 6 5 0 0

0 6 1 7 9 1

0 5 1 0 0 1 1 1

OPERATING
MODE (9)

N

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 81 (Check one or more of the following) (11)

20.402(a)

20.406(a)

50.73(a)(2)(iv)

73.71(b)

20.406(a)(1)(iii)

50.73(a)(1)(i)

50.73(a)(2)(iv)

73.71(a)

20.406(a)(1)(ii)

50.73(a)(2)(i)

50.73(a)(2)(iv)

OTHER (Specify in Abstract
below and in Text, NRC Form
266a)

20.406(a)(1)(iv)

50.73(a)(2)(ii)

50.73(a)(2)(iv)(A)

20.406(a)(1)(vi)

50.73(a)(2)(iv)

50.73(a)(2)(iv)(B)

20.406(a)(1)(v)

50.73(a)(2)(iii)

50.73(a)(2)(i)

LICENSEE CONTACT FOR THIS LER (12)

NAME

Arne A Hunstad, Staff Engineer

TELEPHONE NUMBER

AREA CODE

6 1 2 3 8 8 - 1 1 2 1

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

CAUSE

SYSTEM

COMPONENT

MANUFAC-
TURERREPORTABLE
TO NRC

CAUSE

SYSTEM

COMPONENT

MANUFAC-
TURERREPORTABLE
TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED
SUBMISSION
DATE (15)

MONTH

DAY

YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE)

X NO

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

Historically, pressurizer safety valves used at Prairie Island have been set using nitrogen. As a result of NRC Information Notice 89-90 and guidance in Westinghouse WCAP-12910, it was decided to test the spare pressurizer safety valves using steam. The two spare valves were sent to a contract facility for the testing in preparation for installation on the Unit 1 pressurizer at the upcoming refueling outage.

On May 16, 1991 the contract facility notified Prairie Island of the results of the testing. One valve's lift setpoint was found within the 1% tolerance, but the other valve was found to lift at 2421 psig, about 2.5% below its nominal setpoint of 2485 psig.

The subject valve had been originally installed on Unit 1 from November 18, 1982 till September 15, 1988.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P&30), U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (8)

PAGE (3)

Prairie Island Nuc Gen Plant Unit 1

0 5 10 0 0 2 8 2

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
9 1	0 0 5	0 0 0

2 OF 4

TEXT (IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 306A (4-89))

EVENT DESCRIPTION

On October 13, 1989, Westinghouse informed utilities that a shift in the set pressure of pressurizer safety valves could occur if the valve temperature as-installed was significantly different from the valve temperature when tested. Specifically, the concern was that if the valve was tested on steam, and installed on a cold loop seal, the setpoint drift could be as much as 8% high. It was determined that temperature difference was no concern at Prairie Island because pressurizer safety valves are tested cold, with nitrogen, and installed on cold loop seals.

NRC Information Notice 89-90 informed utilities that in addition to the above concern, a valve setpoint could be too low if the valve was tested cold, installed on a cold loop seal, and later exposed to the hot steam space if the cold loop seal were lost. It was determined that this new concern was not a significant threat at Prairie Island, but that participation in Westinghouse Owners Group activities in this area was warranted. Westinghouse WCAP 12910, issued in March 1991, reported results of those activities.

As a result of NRC Information Notice 89-90 and guidance in Westinghouse WCAP-12910, it was decided to test the spare pressurizer safety valves using steam. The two spare valves had been sent to a contract facility for the testing in preparation for installation on the Unit 1 pressurizer at the upcoming refueling outage.

On May 16, 1991 the contract facility notified Prairie Island of the results of the testing. One valve's lift setpoint was found within the 1% tolerance, but the other valve was found to lift at 2421 psig, about 2.5% below its nominal setpoint of 2485 psig.

The subject valve had been originally installed on Unit 1 from November 18, 1982 till September 15, 1988. Testing prior to valve installation indicated a (nitrogen) set pressure of 2480 psig. After the valve was removed in 1988, testing indicated the (nitrogen) set pressure was unchanged at 2480 psig.

CAUSE OF THE EVENT

Cause of the event is use of a test procedure that may not have provided the most accurate method for setting the pressurizer safety valves. Safety valve set pressure varies based on the method used in setting the valves. The variance occurs when the valve is set at conditions other than as-installed. Recent testing and research performed for WCAP-12910 indicates that correlation of set pressure data between nitrogen and steam may be valve-specific.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Prairie Island Nuc Gen Plant Unit 1	0 5 0 0 0 2 8 2	5 1	0 0 5	0 0	0 3	OF 0 4

TEXT (if more space is required, use additional NRC Form 356A (1) (17))

ANALYSIS OF THE EVENT

Technical Specification 3.1.A.2.b requires pressurizer safety valves to be operable with lift settings of 2485 psig plus or minus 1%. Since one valve was found to be outside the specified tolerance, this event is being reported pursuant to 10CFR50.73(a)(2)(1)(B).

Prairie Island was originally notified of the pressurizer safety valve set pressure deviation issue by a Westinghouse letter dated October 13, 1989. Westinghouse concluded this issue did not constitute a substantial safety hazard. The notification included a Justification for Continued Operation (JCO).

The Justification for Continued Operation evaluated the FSAR licensing basis analysis since pressurizer safety valve setpoints above the nominal 2485 psig plus or minus 1% could impact peak reactor coolant system pressure for events where credit is taken for safety valve relief. Specifically, the Loss of Load/Turbine Trip, Feedline Break, Locked Rotor, and RCCA Ejection analyses were examined. Based on the results of sensitivity studies performed on these transients, the calculated pressure spikes for these transients do not challenge the pressure integrity of the reactor coolant system components.

Concerning setpoints below 2485 psig plus or minus 1%, the JCO concluded that reduction of the valve's set pressure from the nominal value of 2485 psig to a level which opens during normal plant operation is bounded for one safety valve as defined by the current analysis of an inadvertent opening of a safety valve.

Even though the as-found setpoint of the subject valve was 2421 psig, it is unlikely that the valve would be called upon to lift since the power-operated relief valves setpoint is 2335 psig.

Set pressure deviations for valves set with nitrogen are expected to be within the JCO criteria. Test results given in WCAP-12910 indicate that a maximum deviation of about 3% may be expected.

CORRECTIVE ACTION

Future testing will be done using steam. The four remaining valves will be tested as they are removed, during the current refueling outage on Unit 1, and the next refueling outage on Unit 2.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (3)

PAGE (3)

Prairie Island Nuc Gen Plant Unit 1

0 5 0 0 0 2 8 2

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
91	005	00

04 OF 04

TEXT (If more space is required, use additional NRC Form 366A (7/87))

FAILED COMPONENT IDENTIFICATION

Grosby safety valve Model HB-BP-86, Size 6M16.

PREVIOUS SIMILAR EVENTS

There have been no previous similar events reported at Prairie Island.