

March 21, 2000

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

ULNRC-4205

Gentlemen:



**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 2000-003-00
LOW PRESSURIZER SAFETY VALVES
SET POINT PRESSURE**

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(vii) to report pressurizer safety valve set pressure being outside of the Technical Specification tolerance band.

Warren A. Witt
for
R. D. Affolter
Manager, Callaway Plant

RDA/gag *ML*

Enclosure

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LICENSEE EVENT REPORT (LER)

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TITLE (4) **Pressurizer Safety Valve Set Point Drift Outside Technical Specification Requirements**

EVENT DATE (5)				LER NUMBER (6)				REPORT DATE (7)			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	Rev No.	MONTH	DAY	YEAR	MONTH	DAY	YEAR
0 2	2 3	2 0 0 0	2 0 0 0	- 0 0 3	- 0 0	0 3	2 1	2 0 0 0			

FACILITY NAMES	DOCKET NUMBER(S)
	0 5 0 0 0
	0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check one or more of the following) (11)									
POWER LEVEL (10) 1 0 0	<input type="checkbox"/>	20.2201(b)	<input type="checkbox"/>	20.2203(a)(2)(v)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)	<input type="checkbox"/>	50.73(a)(2)(x)
	<input type="checkbox"/>	20.2203(a)(1)	<input type="checkbox"/>	20.2203(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(ix)	<input type="checkbox"/>	73.71
	<input type="checkbox"/>	20.2203(a)(2)(i)	<input type="checkbox"/>	20.2203(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	OTHER (Specify in Abstract below or in Text, NRC Form 366A)
	<input type="checkbox"/>	20.2203(a)(2)(ii)	<input type="checkbox"/>	20.2203(a)(4)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	
	<input type="checkbox"/>	20.2203(a)(2)(iii)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>	
<input type="checkbox"/>	20.2203(a)(2)(iv)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	<input type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>		

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME J. D. Schnack, Supervising Engineer, QA Corrective Action		AREA CODE	
		5 7 3 6 7 6	- 4 3 1 9

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
<input type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO			

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

During Callaway Plant refuel ten outage in October, 1999, the three pressurizer safety valves (PSV) BB8010A, BB8010B and BB8010C, were removed from the system and delivered to a vendor to test set pressure in accordance with Technical Specification (T/S) 4.4.2.2. These valves were replaced with pre-tested spare valves during the refueling outage.

On 2/23/2000, with the Plant at 100% power, Callaway was informed by the vendor that the set pressure test results were outside of the Technical Specification as-found acceptance criteria. T/S 3.4.2.2 specifies a set pressure criteria of 2485 psig plus/minus one percent (2461 psig to 2509 psig). The as-found set pressures for BB8010A, BB8010B, and BB8010C were 2441 psig (-1.77%), 2544 psig (+2.37%), and 2522 psig (+1.49%) respectively. No material deficiencies were identified during the testing and inspection. The inspection revealed no abnormal wear and verified critical tolerances were acceptable. The valves were inspected by the vendor and set pressure reset. Based on inspections, no definitive cause was identified for the setpoint drift.

Vendor testing of the PSVs will continue in the future. Set pressure will be verified within the T/S tolerance band before return as a spare.

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TEXT (If more space is required, use additional NRC Form 366A's)(17)

DESCRIPTION OF EVENT:

During Callaway Plant refuel ten outage in October, 1999, the three pressurizer safety valves (PSV) BB8010A, BB8010B and BB8010C⁽¹⁾, were removed from the system and delivered to a vendor to test set pressure in accordance with Technical Specification (T/S) 4.4.2.2. These valves were replaced with pre-tested spare valves during the refueling outage.

On February 23, 2000, with the Plant in mode one at 100% power, Callaway received the test results from the vendor. Set pressure test results were outside of the Technical Specification as-found acceptance criteria. T/S 3.4.2.2 specifies a set pressure criteria of 2485 psig plus/minus one percent (2461 psig to 2509 psig). The as-found set pressures for BB8010A, BB8010B, and BB8010C were 2441 psig (-1.77%), 2544 psig (+2.37%), and 2522 psig (+1.49%) respectively. No material deficiencies were identified during the testing and inspection.

BASIS FOR REPORTABILITY:

The condition of all three pressurizer safety valves with set pressure test results out of tolerance is being reported in accordance with 10CFR50.73(a)(2)(vii). "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to: (A) Shut down the reactor and maintain it in a safe shutdown condition, (B) Remove residual heat, (C) Control the release of radioactive material, or (D) Mitigate the consequences of an accident."

CONDITION AT TIME OF EVENT:

Mode 1, Power Operations - 100% power

ROOT CAUSE:

The cause of the failure is considered to be set pressure drift. The valves were disassembled and inspected by the vendor. The vendor did not identify any definitive root cause for the set pressure drift.

The difficulty of Pressurizer Relief Valves to meet the +/- 1% setpoint tolerance has been an industry problem resulting in several licensees requesting amendments to relax the tolerance. The OM-1 1987 version uses +/- 3 % of pressure relief valve set pressure for identifying degraded conditions requiring an increase in test scope.

CORRECTIVE ACTIONS:

Pressurizer safety valves removed from the system for testing were replaced by inspected and pre-tested spare valves in refuel ten. The as-left set pressure was verified to be within the specified acceptance band. As such, no current operability concern exists.

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Callaway Plant Unit 1	0 5 0 0 0 4 8 3	2 0 0 0	- 0 0 3	- 0 0	0 3	OF	0 4

TEXT (If more space is required, use additional NRC Form 366A's)(17)

Pressurizer safety valves will continue to be removed from the system during refuel outages for testing and inspection. Any valve that exceeds the as-found set pressure criteria will be fully refurbished (complete disassembly and inspection) prior to installation at Callaway.

Callaway has initiated Operating License Amendment No. 1206 to revise the PSV nominal setpoint and the allowable setpoint tolerance. The nominal setpoint will be lowered by 1% from 2485 psig to 2460 psig. The allowable setpoint tolerance will be increased to +/- 2% from +/- 1%. These changes result in a 2% decrease in the minimum acceptable PSV setpoint from 2460 psig to 2411 psig. The maximum acceptable PSV setpoint of 2509 psig is unaffected by this proposed change. This proposed change should increase the probability of as-found PSV setpoints being within the acceptable range.

SAFETY SIGNIFICANCE:

The limiting maximum allowable PSV set point requirements are established based on the loss of external electrical load transient analysis. Westinghouse performed a re-analysis of this FSAR Chapter 15 event using the PSV as-found values instead of the current 2485 psig +1% set point tolerance. The Westinghouse re-analysis shows that the results currently presented in the FSAR Chapter 15 for the limiting over pressurization event remain bounding. The additional margin gained from the earlier relief provided by one PSV opening with a as-found set pressure of 2441 psig offsets the delay in relief provided by the other two PSV's opening with as-found set pressures of 2522 psig and 2544 psig. Westinghouse has concluded that the increased as-found PSV setpoint tolerance either has no impact on the other non-LOCA transients where PSV's are assumed to actuate or is bounded by the results of the re-analysis. Although the PSV as-found values documented in this SOS exceeded the Tech Spec allowed setpoint tolerance, no past or current nuclear safety concerns exist. Additionally, the as-found PSV setpoint tolerances would not have adversely impacted the ability of the PSV's to prevent the RCS from being pressurized above its Safety Limit of 2735 psig, as discussed in Tech Spec Bases 3.4.2.

The existing Probabilistic Risk Assessment (PRA) analysis was reviewed to ascertain whether or not this adversely affected core damage frequency. There were three potential PRA areas that could be impacted by the PSV set pressure shift:

- 1) the PRA event trees that question pressure relief and/or feed and bleed,
- 2) the analyses performed with the MAAP thermal-hydraulic code for success criteria, and
- 3) the Level 2 analyses performed with MAAP code for source term generation.

The conclusion of the PRA reanalysis was that the PSV set pressure shift described in this Licensee Event Report has no impact on the Callaway core damage frequency or other PRA calculations.

The plant experienced no transients during the past operating cycle which challenged the pressurizer safety valves. Therefore, the condition of the valve setpoints did not affect the health and safety of the public.

PREVIOUS OCCURRENCES:

A pressurizer safety valve has been observed to be outside of the plus/minus one percent set pressure tolerance band nine times prior to refuel ten (LER 98-006-00). On eight of these occasions, testing revealed

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TEXT (If more space is required, use additional NRC Form 366A's)(17)

the set pressure to be low outside of the tolerance band. On one occasion the set pressure was observed to be high outside the set pressure tolerance band.

FOOTNOTES:

The system and component codes listed below are from the IEEE Standard 805-1984 and 803A-1983, respectively.

(1) System, AB, Component - RV