

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 B	PAGE (3) 1 OF 03
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TITLE (4)  
Inadvertent Engineered Safety Features Actuation

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
1	0	1984	84	054	00	1	1	1984			0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 6	20.402(b)	20.405(e)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.406(a)(1)(i)	50.36(e)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)					
	20.406(a)(1)(ii)	50.36(e)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
	20.406(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)						
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)						
20.406(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)	
NAME Michael E. Taylor - Superintendent, Operations	TELEPHONE NUMBER AREA CODE: 311 4 6171 61-1812 017

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)		
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO		MONTH	DAY	YEAR

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

On 10/19/84 and 10/21/84, the Power Range Nuclear Instrumentation (NI) channels caused fluctuations in steam generator (S/G) water levels. In both events, a high level in 'B' S/G initiated a Feedwater Isolation, an Auxiliary Feedwater Actuation and S/G Blowdown Isolation, as designed. All equipment and personnel responded as expected following the events.

Prior to initial criticality, the gain of the Power Range NI channels was increased to provide conservative indication of reactor power level. This high gain input to the S/G Level Control circuitry caused S/G levels to oscillate, which resulted in the first event.

The second event occurred when the four NI channels were being calibrated to calorimetric power level. When these channels were adjusted down, the feedwater bypass valves modulated closed, causing S/G levels to decrease. The Auxiliary Feedwater pumps were started to compensate for the decreasing levels. This caused the high level in 'B' S/G initiating the above actuations.

The Power Range NI channels were calibrated to approximate thermal power. Operators were instructed to place feedwater controllers in manual while work is being done on NI channels. Also, additional retraining will be given to operators by 11/30/84 on S/G Level Control inputs.

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

This LER concerns two similar events in which a Feedwater Isolation Signal (FWIS), an Auxiliary Feedwater Actuation Signal (AFAS) and a Steam Generator Blowdown Isolation Signal (SGBDIS) were initiated by a high level in 'B' steam generator (S/G).

Prior to the first event, the plant was in Mode 1, 6% Rated Thermal Power (RTP). The Power Range Nuclear Instrumentation channels had not had their gain adjusted to approximate thermal power. This calibration is not required until 15% RTP is obtained. The gain of the NI channels had been set to a high level to provide a conservative indication of reactor power. The NI channels are also used as inputs to the S/G Level Control circuitry to provide an indication of anticipated steam demand at low reactor power levels. Thus, the high gain of the NI channels caused oscillations within the S/G Level Control circuits, which in turn led to modulation of the feedwater bypass valves. While operators were attempting to regain control of the resulting S/G levels, a high level was reached in 'B' S/G and at 1549 CDT on 10/19/84 a FWIS, AFAS and SGBDIS occurred. All equipment and personnel responded as expected following the event. The actuations were reset and the plant was stabilized at 2% power.

Prior to the second event, the plant was in Mode 1 at 8% RTP. S/G Level Control was in the automatic mode, controlling the feedwater bypass valves while the Power Range NI channels were being adjusted. All four of the Power Range NI channels were set at a high gain and were being adjusted down to approximate the thermal power calculated from a heat balance. The first three channels were adjusted down without incident. Since the input to the controller is auctioneered high Nuclear Power, the last channel became the controlling channel to the S/G Level Control, and when it was adjusted down the feedwater bypass valves modulated closed. This resulted in S/G levels decreasing at a rapid rate. Both motor-driven Auxiliary Feedwater pumps were started to regain control of S/G Level. Subsequent excessive swelling in 'B' S/G caused 'B' S/G high level and resulted in a FWIS, AFAS and SGBDIS. All equipment and personnel responded as expected following the event. Plant conditions were stabilized at 1% power.

No corrective actions, other than calibrating the Power Range NI channels to approximate thermal power, were taken as a result of the first incident. As this was the initial calibration of the NI gain adjustment, this incident is not expected to recur.

To prevent recurrence of the second event, operators were instructed to place the feedwater bypass controllers in manual while work is being done on the Power Range NI channels if they are unable to give constant attention to S/G water levels. Also, the operators will be reinstructed as to the input signals associated with S/G Level Control. This retraining is expected to be complete 11/30/84.

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

No radioactivity was released as a result of these incidents. These events could not have occurred at full power as the Power Range NI channels do not input to S/G Level Control at power levels above 15%. At no time did this event pose a threat to public health or safety.

Previous occurrences: none

UNION ELECTRIC COMPANY  
CALLAWAY PLANT

MAILING ADDRESS:  
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November 16, 1984

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

ULNRC-977

DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
FACILITY OPERATING LICENSE NPF-30  
LICENSEE EVENT REPORT 84-054-00  
INADVERTENT ENGINEERED SAFETY FEATURES ACTUATION

Gentlemen:

The enclosed Licensee Event Report is submitted pursuant to 10 CFR 50.73(a)(2)(iv) concerning an inadvertent Engineered Safety Features Actuation.

*S. E. Miltenberger*  
S. E. Miltenberger  
Manager, Callaway Plant

JTP/WRR/JMS/drs  
Enclosure

cc: Distribution attached

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cc distribution for ULNRC-977

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