

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Callaway Plant Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 8 3										PAGE (3) 1 OF 0 3																	
TITLE (4) Inadvertent Engineered Safety Feature Actuation Signal																																					
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)						
0 6			1 7			8 4			8 4			0 0			4			0 2			0 7			1 2			8 5			Wolf Creek Gen. Sta.				0 5 0 0 0 4 8 2			
0 6			1 7			8 4			8 4			0 0			4			0 2			0 7			1 2			8 5							0 5 0 0 0			
OPERATING MODE (9) 6						THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																73.71(b)															
POWER LEVEL (10) 0 0 0						20.402(b)						20.405(c)						<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)															
						20.405(a)(1)(i)						50.36(c)(1)						50.73(a)(2)(v)																			
						20.405(a)(1)(ii)						50.36(c)(2)						50.73(a)(2)(vi)																			
						20.405(a)(1)(iii)						50.73(a)(2)(i)						50.73(a)(2)(vii)(A)																			
						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)(ix)																									
LICENSEE CONTACT FOR THIS LER (12)																						TELEPHONE NUMBER															
NAME Charles D. Naslund - Superintendent, I&C										AREA CODE 3 1 4				6 7 6 - 8 5 0 1 0																							
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																					
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPDs		CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPDs																			
B		J E		R E		G 0 6 3		N																													
SUPPLEMENTAL REPORT EXPECTED (14)																						EXPECTED SUBMISSION DATE (15)				MONTH		DAY		YEAR							
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)

At 1418 CDT on 6/17/84 an Engineered Safety Feature Actuation Signal (ESFAS) was initiated by a radiation monitor causing a Containment Purge Isolation Signal (CPIS) and a Control Room Ventilation Isolation Signal (CRVIS). The plant was in Mode 6, performing initial fuel loading at the time of the event.

While troubleshooting a faulty vacuum transducer on Containment Purge Exhaust Radiation Element GT-RE-33, technicians failed to utilize the ESFAS bypass channel. During the course of this work an erroneous high radiation signal was received which initiated the CPIS and CRVIS. The systems were reset per plant operating procedures, the ESFAS channel was properly bypassed, and the vacuum transducer was replaced and functionally checked satisfactorily on 6/22/84.

There was no damage to plant equipment or release of radioactivity as a result of this incident. This incident was not the result of actual radiation levels but of spurious electronic signals, therefore the public health and safety was not affected.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Callaway Plant Unit 1	0 5 0 0 0 4 8 3	8 4	- 0 0 4	- 0 2 0	2	OF	0 3

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

At 1418 CDT on 6/17/84 an Engineered Safety Feature Actuation Signal (ESFAS) occurred initiating a Containment Purge Isolation Signal (CPIS) and a Control Room Ventilation Isolation Signal (CRVIS). The plant was in Mode 6 performing initial fuel loading at the time of the event.

Prior to this event, Containment Purge Exhaust Radiation Element GT-RE-33 (IEEE Std 805-1983 System - JE, IEEE Std 803A-1983 Component - RE) had been giving loss of flow high pressure alarms. Technicians were troubleshooting without having placed the ESFAS channel in bypass. The channel was not bypassed because the problem with the monitor was believed to be a faulty vacuum transducer which would not cause an ESFAS signal. During the course of the work an erroneous high radiation signal was received. This signal was generated as a result of an erroneous high vacuum correction factor being applied to the gas channel reading which then caused the ESFAS. Although the vacuum transducer was found to be defective the radiation monitor was operating conservatively and capable of performing its required function.

The operators reset the Containment Purge and Control Room Ventilation systems per plant operating procedures and the ESFAS channel was placed in bypass until the vacuum transducer was replaced. The radiation monitor was functionally tested satisfactorily on 6/22/84.

As indicated in the initial submission of this LER, spurious alarms have been received on similar monitors and have been the subject of a continuing investigation as to the cause.

The spurious alarms occur for short periods of time, approximately 10 seconds, with no identifiable pattern. Several theories for the spurious alarms had been proposed and all have been disproved. These theories included concurrent actuations of HVAC units, faulty detectors, and faulty power supplies. A proposed solution from the vendor, GA Technologies Inc., was to replace the I/O board in the RM-80 microprocessing unit for the radiation monitors. This proposal was believed to be the solution as no spurious alarms were received for approximately three months. However, on 12/9/84 and 12/14/84 spurious alarming from Control Room HVAC Radiation Element GK-RE-4 (IEEE Std 805-1983 System - JE, IEEE Std 803A-1983 Component - RE) resulted in a CRVIS as reported in LER 84-063-00.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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					8 4	- 0 0 4	- 0 2	0 3	OF	0 3

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

The resultant investigations into the cause for the spurious alarms have revealed an incompatibility between the software and hardware in the RM-80 microprocessing unit for the radiation monitors. Through continued discussions with GA Technologies Inc., it was discovered that the RM-80 microprocessing units were designed to utilize "100 times overrun" software to accommodate scintillator pulse counter overflow. However, the Callaway Plant does not require the use of this software and therefore the supporting hardware was not installed. GA Technologies Inc. has indicated that if the "100 times overrun" software is activated without the supporting hardware the radiation monitors would lock up for a short period of time at a fixed high radiation value. This was confirmed through a review of radiation monitor alarm printouts.

GK-RE-4 has been the source of the majority of inadvertent ESFAS for which the cause can be attributed to the software/hardware incompatibility. Due to the time required to eliminate the "100 times overrun" software from the radiation monitors, the hardware necessary to support the existing software in GK-RE-4 has been installed. The remaining process radiation monitors will have the "100 times overrun" software eliminated. This is expected to be complete by 8/31/85.

There was no damage to plant equipment or release of radioactivity as a result of this incident. This incident was not the result of actual radiation levels but of spurious electronic signals, therefore the public health and safety was not affected.

Recurrences: LER's 85-003-00; 84-063-00; 84-036-00; 84-025-01

UNION ELECTRIC COMPANY
CALLAWAY PLANT

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July 12, 1985

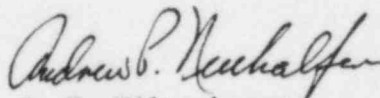
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

ULNRC-1138

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 84-004-02
INADVERTENT ENGINEERED SAFETY FEATURE ACTUATION

The enclosed Licensee Event Report is submitted pursuant to
10 CFR 50.73(a)(2)(iv) concerning inadvertent Engineered Safety Features
actuations caused by spurious radiation monitor signals.


S. E. Miltenberger
for Manager, Callaway Plant

CDN/WRR/RCW/gjt
Enclosure

cc: Distribution attached

IE22
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cc distribution for ULNRC-1138

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