



Callaway Plant

April 16, 1990

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

ULNRC-2195

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 90-003-00
BOTH TRAINS OF CLASS IE AIR CONDITIONER UNITS COULD HAVE
BEEN DISABLED BY THE FIRE PROTECTION SYSTEM DUE TO A DESIGN ERROR

The enclosed Licensee Event Report is submitted pursuant to
10 CFR 50.73(a)(2)(v) and (vii) concerning a design error which could
have disabled both trains of Class IE air conditioner units and thereby
prevented the proper ventilation and cooling of both trains of
Engineered Safety Feature switchgear.

J. D. Blosser
Manager, Callaway Plant

TPS ~~gdb~~
TPS/JKB:lrj

Enclosure

cc: Distribution attached

9004260259 900416
PDR ADDCK 05000483
S PDC

IE22
11

cc distribution for ULNRC-2195

Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

American Nuclear Insurers
c/o Dottie Sherman, Library
The Exchange Suite 245
270 Farmington Avenue
Farmington, CT 06032

Manager, Electric Department
Missouri Public Service Commission
P. O. Box 360
Jefferson City, MO 65102

Records Center
Institute of Nuclear Power Operations
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA 30339

NRC Resident Inspector

Mr. Anthony T. Gody, Jr. (2 copies)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 13-E-21
Washington, D.C. 20555

Mr. O. Maynard
Wolf Creek Nuclear Operating Corp.
P. O. Box 411
Burlington, KS 66839

Mr. Merlin Williams
Supt. of Regulatory Quality &
Administrative Services
Wolf Creek Nuclear Operating Corp.
P. O. Box 411
Burlington, KS 66839

Mr. R. L. Hague
Chief, Project Section 3C
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Callaway Plant Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 8 3 1 OF 0 3										PAGE (3) 1 OF 0 3																							
TITLE (4) Both Trains of Class IE Air Conditioner Units Could Have Been Disabled By The Fire Protection System Due To A Design Error																																											
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 5 0 0 0																			
0 3		1 4		9 0		9 0		0 0 3		0 0 0		4 1 6		9 0								0 5 0 0 0																					
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 C.F.R. 5. (Check one or more of the following) (11)																																									
1		20.402(b)										20.405(c)										50.73(a)(2)(iv)										73.71(b)											
POWER LEVEL (10)		1 0 0										20.405(a)(1)(i)										50.36(e)(1)										50.73(a)(2)(v)										73.71(c)	
												20.405(a)(1)(ii)										50.36(e)(2)										50.73(a)(2)(vi)										OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
												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)																																											
NAME W. R. Campbell, Manager, Nuclear Engineering																TELEPHONE NUMBER 3 1 4 6 7 6 - 8 4 6 9																											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																											
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPD		CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPD																									
SUPPLEMENTAL REPORT EXPECTED (14)																EXPECTED SUBMISSION DATE (15)		MONTH		DAY		YEAR																					
YES (If yes, complete EXPECTED SUBMISSION DATE)																X NO																											

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

At 1115 on 3/14/90, utility engineering personnel determined that, contrary to the design requirements of 10CFR50 Appendix A, the fire protection Halon system for either of the Engineered Safety Feature (ESF) switchgear rooms could have disabled both trains of Class IE Air Conditioner (A/C) units and thereby prevented the proper ventilation and cooling of the safety systems located within those rooms. The long term operation of the affected safety systems could have been degraded without assurance of the fulfillment of the ESF systems' safety functions. These systems included two redundant 4.16KV ESF buses and four 480V ESF buses which supply power to various plant safety systems. Operator action would have been required to reset the Halon panel. The plant was in Mode 1, Power Operations, at 100% reactor power, at the time of discovery.

The root cause of this event is attributable to a design error made during the construction of the plant. The architectural engineer made wiring changes inside the vendor supplied fire protection panel such that both Class IE A/C units would be tripped by a Halon actuation signal from either ESF switchgear room. As corrective action, the fire protection panel was deactivated and a design modification was implemented to remove the cross train trip signal.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Callaway Plant Unit 1	05000483	90	003	00	02	OF	03

TEXT (If more space is required, use additional NRC Form 3664's) (17)

Basis for Reportability

At 1115⁽¹⁾ CST on 3/14/90, it was determined that the fire protection Halon⁽²⁾ system for either of the Engineered Safety Feature (ESF) switchgear rooms⁽³⁾ could have disabled both trains of Class IE air conditioner (A/C) units and thereby prevented the proper ventilation and cooling of the safety systems located within those rooms. The long term operation of the affected safety systems could have been degraded without assurance of the fulfillment of the ESF systems' safety functions, unless operator action was taken to reset the Halon panel⁽⁴⁾. This report is submitted pursuant to 10CFR50.73(a)(2)(v) and (vii). The plant was in Mode 1, Power Operations, at 100% reactor power, at the time of discovery.

Description of Event

At 1115 on 3/14/90, following a review of the Power Block Halon Functional Test procedure, MSM-KC-FQ001, utility engineering personnel determined that, contrary to the design requirements of 10CFR50 Appendix A, the fire protection Halon system for either of the ESF switchgear rooms could have disabled both trains of Class IE A/C units and prevented the proper ventilation and cooling of the safety systems located within those rooms⁽⁵⁾. The affected safety systems⁽⁶⁾ included two redundant 4.16KV ESF buses and four 480V ESF buses which supply power to various plant safety systems. Operator action would have been required to reset the Halon panel before normal or accident related cooling could have been restored.

Root Cause

The root cause of this event is attributable to a design error made during the construction of the plant. The architectural engineer made wiring changes inside the vendor supplied fire protection panel such that both Class IE A/C units would be tripped by a Halon actuation signal from either ESF switchgear room.

Corrective Actions

At 1250 on 3/14/90, the fire protection panel was deactivated and a continuous fire watch was established. A design modification was implemented at 0140 on 3/15/90 to remove the cross train trip signal. The revised configuration will only shut down the Class IE A/C unit for the associated ESF switchgear room. There are no other configurations in the plant which will allow the fire protection system to shut down two trains of air conditioners.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/86

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 3 9 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		—	0 0 3	—	0 0	0 3	OF 0 3

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

Safety Significance

If a Halon actuation signal had been received, the Class IE A/C units would not have provided cooling to the ESF switchgear rooms. This would have resulted in a rise in temperatures for the affected rooms and would have alarmed the Control Room annunciators. The licensed operators would have been made aware of the condition in a sufficient period of time to reset the Halon panel and restore cooling to the rooms. With this operator action, there would have been no impact on safety since the safety equipment installed in the rooms would have performed their intended safety functions.

Previous Occurrences

None.

Footnotes

The system and component codes listed below are from IENE Standards 805-1984 and 803A-1984, respectively.

- (1) System KQ
- (2) System EB, Component SWGR
- (3) System EB, Component ACU
- (4) System KQ, Component PL
- (5) System EB, Component BU
- (6) System ED, Component BU