

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Davis-Besse Unit 1 DOCKET NUMBER (2) 05000346 PAGE (3) 1 OF 03

TITLE (4) Safety Features Actuation Due to an Electric Short

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)
04	01	86	86	016	00	04	28	86			05000
<p>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)</p>											

OPERATING MODE (9) <u>5</u>	20.402(b)	20.408(a)	<input checked="" type="checkbox"/>	80.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) <u>01010</u>	20.408(a)(1)(i)	80.38(a)(1)	<input type="checkbox"/>	80.73(a)(2)(v)	73.71(a)
	20.408(a)(1)(ii)	80.38(a)(2)	<input type="checkbox"/>	80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 386A)
	20.408(a)(1)(iii)	80.73(a)(2)(i)	<input type="checkbox"/>	80.73(a)(2)(vii)(A)	
	20.408(a)(1)(iv)	80.73(a)(2)(ii)	<input type="checkbox"/>	80.73(a)(2)(vii)(B)	
	20.408(a)(1)(v)	80.73(a)(2)(iii)	<input type="checkbox"/>	80.73(a)(2)(viii)	
	20.408(a)(1)(vi)	80.73(a)(2)(iv)	<input type="checkbox"/>	80.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Patricia Anthony TELEPHONE NUMBER 419 2491-1510

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15) MONTH 04 DAY 01 YEAR 87

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

While Safety Features Actuation System (SFAS) Channel 2 was de-energized for maintenance, the power to SFAS Channel 1 (Y1) was lost due to an electrical short in Reactor Protection System (RPS) Channel 1. As a result of this, a full SFAS actuation of Levels 1 through 5 occurred. This happened on April 1, 1986 at 10:23 hours while the plant was in Mode 5.

All SFAS actuated equipment responded as required. Reactor coolant recirculation was maintained by the Decay Heat (DH) System. Power was restored to buses Y1 and Y1A and by 15:20 hours the trip bistables were reset.

This occurrence is being reported under 10CFR50.73(a)(2)(iv).

8605070236 860428  
PDR ADOCK 05000346  
S PDR

*Handwritten initials/signature*

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

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

Description of Occurrence:

On April 1, 1986 at 10:23 hours Levels 1 through 5 of SFAS actuated. Prior to the event, SFAS Channel 2 was de-energized for maintenance. Power to SFAS Channel 1 was lost when Y1, the essential power supply to SFAS Channel 1, was de-energized. Y1 was de-energized when a washer fell from a lifted lead of a fan failure detector in RPS Channel 1 which is also powered by Y1. The washer shorted out the terminal block in the cabinet. The lack of power to two SFAS channels caused a 2 of 4 logic condition and initiated SFAS.

All SFAS required equipment responded properly. No injection occurred since the High Pressure Injection (HPI) and Containment Spray (CS) Pumps were electrically disconnected per procedure in Mode 5.

The following anomalies were found during the actuation: 1) All Level 2 safety actuation monitoring (SAM) lights for Channels 1 and 2 did not respond due to loss of their power supply (Y1), 2) Several valves had no red/green indication due to loss of power from Y1, and 3) The SAM lights for valves CC1495, HV5439, HV5440, HV5716, and CV5301 did not show flashing indication when blocked and repositioned. The cause of the last anomaly is still undetermined. The valves are functional and all other aspects of their indications are operating. Investigation into the cause is continuing and a revision to this report will be submitted when the cause is determined.

Five fuses in Y1 were found blown after the actuation. They were in YV1 inverter, Y106 for RPS Channel 1, Y110 for a relay cabinet and a meter on DC MCC 1, Y113 for a BWST heat trace panel, and Y114 for a freeze protection panel.

At 11:30 hours all SFAS actuated equipment was secured. SFAS Channel 2 was re-energized by 14:10 hours. At 15:20 hours all tripped bistables in SFAS Channel 1 were reset.

At 12:00 hours the notification was made via the Emergency Notifications System as required by 10CFR50.72(b)(2)(ii). This report is being submitted in accordance with the 10CFR50.73(a)(2)(iv) requirement to report an automatic actuation of an Engineered Safety Feature.

Designation of Apparent Cause of Occurrence:

The de-energization of Y1 was due to a washer falling and shorting the terminal block in the bottom of the cabinet when a fan failure detector lead on RPS Channel 1 was lifted during maintenance. The maintenance person properly taped off the lifted lead but did not notice there was a washer under the lead which fell causing an electrical short circuit. This caused an overcurrent condition which blew fuses.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

TEXT (If more space is required, use additional NRC Form 388A's) (17)

Since SFAS Channel 2 was de-energized, a 2 of 4 logic condition existed and Levels 1 through 5 actuated.

Analysis of Occurrence:

There was no compromise of plant or public safety due to this event. All equipment required to actuate as part of SFAS in Mode 5 performed its function.

The Borated Water Storage Tank (BWST) valves did not realign since they are presently tagged closed as a precaution during Reactor Coolant Pump seal work. The Decay Heat Pump already running continued recirculating reactor coolant. The second pump started and also recirculated reactor coolant.

Containment Spray Pumps and the High Pressure Injection Pumps were tagged out of service per procedure as a precaution in Modes 5 and 6 and therefore did not start. These would have been available for injection if the event had occurred in Modes 1 through 4. In Mode 1 the unit would trip since the power auctioneer circuit is part of RPS Channel 1.

Corrective Action:

At 11:30 hours all SFAS related equipment was restored. SFAS Channel 2 was re-energized by 14:10 hours. At 15:20 hours all tripped bistables in SFAS Channel 1 were reset. No equipment was damaged in the cabinet where the short occurred. The blown fuses are being replaced.

The incident which initiated the event has been discussed with I&C maintenance personnel. This discussion included the cause of the event with an emphasis placed on this particular potential hazard and on those of a similar nature.

Further study is being conducted into how to reduce the effects of short circuits in the essential inverters as part of the System Review and Test Program. This will include a study of why all five of these fuses blew during the event. The study is expected to be completed within one year.

Failure Data:

This is the second inadvertent full SFAS actuation in 1986. Prior to these occurrences the last full SFAS actuation occurred in 1980.

REPORT NO.: NP-33-86-20

DVR NO(s): 86-074

April 28, 1986



Log No. KA86-127  
File: RR 2 (NP-33-86-20)

Docket No. 50-346  
License No. NPF-3

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

LER No. 86-016  
~~Davis-Besse~~ Nuclear Power Station Unit 1  
Date of Occurrence: April 1, 1986

Enclosed is Licensee Event Report 86-016 which is being submitted in accordance with 10CFR50.73, to provide 30 day written notification of the subject occurrence.

Yours truly,

A handwritten signature in cursive script, appearing to read 'Louis F. Stora'.

Louis F. Stora  
Plant Manager  
Davis-Besse Nuclear Power Station

LFS/ed

Enclosure

cc: Mr. James G. Keppler  
Regional Administrator  
USNRC Region III

Mr. Paul Byron  
DB-1 NRC Resident Inspector

IE22  
1/1