

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Davis-Besse Unit 1

DOCKET NUMBER (2)  
0 5 0 0 0 3 4 6

PAGE (3)  
1 OF 0 3

TITLE (4)  
Unplanned Reactor Shutdown Due to Personnel 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)
06	24	84	84	010	00	07	24	84			05000
											05000

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) 0.94	20.402(b)	20.406(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(i)	50.38(e)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(a)						
	20.406(a)(1)(ii)	50.38(e)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)						
	20.406(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(vii)(A)							
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(vii)(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)						TELEPHONE NUMBER					
NAME G. E. Narus, Shift Technical Advisor						AREA CODE 419 259-5000					

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		
X	E	F	I	N	V	I	C	7	8	2	N

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)

At 0420 hours on June 24, 1984, with the unit at 94% of full power, 840 MWe, Davis-Besse Unit 1 experienced a loss of power to Y4, the Channel 4 Essential 120 VAC Bus. This deenergized Channel 4 of the Reactor Protection System and opened its associated Control Rod Drive Breaker set "A" and "C". The failure was in the YV4 inverter. It was repaired, and Y4 Bus was declared operable at 1057 hours on June 24, 1984. After the required surveillance test was done on Reactor Protection System Channel 4, the Instrument and Control mechanic, who had been doing the test, intending to close the open control rod drive breaker, which he thought was Breaker "D", proceeded to Control Rod Drive Breaker "D" and accidentally opened it, causing a reactor shutdown at 1354 hours on June 24, 1984. Plant post trip response was as expected with no safety limits exceeded.

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		8 4	0 1 0	0 0	0 2	OF	0 3

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

Description of Occurrence: On June 24, 1984, while operating at approximately 94% of full power, at 0420 hours the Essential Instrumentation Bus Y4 (EF) deenergized due to the Essential Inverter (INVT) YV4 blowing an input fuse (FU). This deenergizes Channel 4 instrumentation systems including Channel 4 of Safety Features Actuation System, SFAS, Channel 4 of the Anticipatory Reactor Trip System, ARTS, and Channel 4 of the Reactor Protection System, RPS, (JE), which opens one set ("A" and "C") of control rod drive breakers (BKR).

The YV4 inverter was repaired and returned to service with the Y4 bus back to normal at 1057 hours on June 24, 1984. In order to return Channel 4 of the RPS back to service, Surveillance Test ST 5030.02, "RPS Monthly Functional Test" was performed and its associated set of control rod drive breakers then were to be closed. The Instrument and Control mechanic, who had been doing the test, intending to close the open control rod drive breaker, which he thought was Breaker "D", proceeded to Control Rod Drive Breaker "D" and accidentally opened it, causing a reactor shutdown at 1354 hours on June 24, 1984.

The plant post trip response was as expected with a minimum Reactor Coolant System, RCS, pressure of 1775 psig and a minimum pressurizer level of 30 inches. Some problems were experienced with Main Feed Pump (MFP) #1 control after the shutdown requiring the use of MFP #2 to supply the needed feedwater.

Designation of Apparent Cause of Occurrence: The cause of the reactor shutdown was due to personnel error when Control Rod Drive Breaker "D" was opened while the Control Rod Drive Breaker set "A" and "C" was still open from the loss of Essential AC Bus Y4. The Instrument and Control mechanic had intended to reset the open breaker following completed surveillance testing which was to restore Y4 to operable status.

It is also noted that an anomaly exists in the identification scheme used with RPS channels and the Control Rod Drive Breakers B, A, D, and C, respectively. The existing control rod drive breaker labeling does not provide RPS channel information.

The loss of Essential Inverter YV4 was caused by a failure of a zener diode and resistor in its logic power supply circuit board.

Analysis of Occurrence: The post shutdown plant response was as expected with no safety limits exceeded or unplanned radioactive releases made.

After stabilizing the plant in Hot Standby, Mode 3, a reactor startup was commenced and criticality was achieved at 0420 hours on June 25, 1984. The Main Generator was synchronized with the system grid at 0704 hours on June 25, 1984.

Corrective Action: The personnel involved with the incident are aware of the error in judgment they made and the consequences that followed. This event will be reviewed by all Instrument and Control shop personnel. Signs are being made and will be posted on the control rod drive breaker cabinets stating "CAUTION, verify

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flag position before opening or closing breaker". This will be a visible means to the mechanics and/or operator of what to look for prior to resetting any breaker.

The control rod drive breakers will additionally be labeled to indicate its associated RPS channel. Toledo Edison is investigating the use of protective "flip-up" covers to be placed over the control rod drive breaker "trip" switches to prevent inadvertent actuations.

Troubleshooting was conducted on Main Feed Pump Turbine #1 controls but the problem did not recur and the controls checked out normal. Facility Change Request 81-075, which will replace these main feed pump turbine controls, is scheduled for implementation during the 1984 Refueling Outage.

The failure in the YV4 inverter is the second failure of this type on essential inverters at Lavis-Besse within the last twelve months. A review group at Toledo Edison and the B&W Owners Group I&C Work Group are reviewing the problem with essential inverters.

Failure Data: A similar occurrence of a failure of an essential inverter was reported in Licensee Event Report NP-33-83-87 (83-061).

Report No: NP-33-84-10

DVR No(s): 84-085



July 24, 1984

Log No. K84-1020  
File: RR 2 (NP-33-84-10)

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

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

Gentlemen:

LER No. 84-010  
Davis-Besse Nuclear Power Station Unit 1  
Date of Occurrence: June 24, 1984

Enclosed is Licensee Event Report 84-010, 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 that reads 'TDMurray'.

Terry D. Murray  
Station Superintendent  
Davis-Besse Nuclear Power Station

TDM/ljk

Enclosure

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

Mr. Walt Rogers  
DB-1 NRC Resident Inspector

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