



EDISON PLAZA
300 MADISON AVENUE
TOLEDO, OHIO 43652-0001

February 26, 1990

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NP33-90-002

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

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Gentlemen:

LER 90-002
Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence - January 26, 1990

Enclosed please find Licensee Event Report 90-002, which is being submitted to provide 30 days written notification of the subject occurrence. This LER is being submitted in accordance with 10CFR50.73(a)(2)(iv).

Yours truly,

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

LFS/plf

Enclosure

cc: Mr. A. Bert Davis
Regional Administrator
USNRC Region III

Mr. Paul Byron
DB-1 NRC Sr. Resident Inspector

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Davis-Besse Unit No. 1	DOCKET NUMBER (2) 0 5 0 0 0 3 4 1 6	PAGE (3) 1 OF 0 3
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TITLE (4)
Reactor Trip from 73 Percent Due to Spurious RCP Monitor Circuit 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 1	2 6	9 0	9 0	0 0 2	0 0	0 2	2 6	9 0			0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 81. (Check one or more of the following) (11)											
POWER LEVEL (10) 0 7 3	20.402(b)			20.406(e)			80.73(a)(2)(iv)			73.71(b)		
	20.406(a)(1)(i)			80.36(e)(1)			80.73(a)(2)(v)			73.71(e)		
	20.406(a)(1)(ii)			80.36(e)(2)			80.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	20.406(a)(1)(iii)			80.73(a)(2)(i)			80.73(a)(2)(viii)(A)					
	20.406(a)(1)(iv)			80.73(a)(2)(ii)			80.73(a)(2)(viii)(B)					
20.406(a)(1)(v)			80.73(a)(2)(iii)			80.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Jan C. Stotz, Engineer - Maintenance Planning	TELEPHONE NUMBER 4 1 9 3 2 1 - 7 5 4 4
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	C 1 B	I I S V V	O 8 1 5	Y					
X	S 1 B	I R V D	2 4 3	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (16)	MONTH	DAY	YEAR
	0 6	0 1	1 9 0

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (18)

On January 26, 1990, at 0846 hours, during performance of Surveillance Test DB-MI-03205, RCP Current Monitor Inputs to SFRCS ACH1 and RPS Channel 1, the Station experienced a reactor trip from 73 percent full power. Prior to the trip, the Station had been operating with three of four RCPs running. Plant response to the trip was normal with key parameters remaining in the normal post-trip band. Steam generator header pressure was intentionally reduced to approximately 970 psig to aid in fully reseating two main steam safety valves solidly. After stabilization of the plant, the Letdown Isolation Valve, MU2B, would not reopen. The inability to restore the letdown flow resulted in slower than normal plant cooldown and Mode 5 was achieved on January 27, 1990, at 0345 hours. An action plan is being prepared to determine the cause of the RCP current monitor circuit transient which caused the Reactor Protection System (RPS) to sense that only one RCP was running in each of two loops. MU2B valve will be replaced this outage. The cause of its failure will be investigated.

Immediate notification was made per 10CFR50.72(b)(2)(ii) on January 26, 1990, at 1007 hours. The reactor trip is reportable as an LER per 10CFR50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 0	0 0 2	0 0	0 2	OF 0 3

TEXT (if more space is required, use additional NRC Form 200A's) (17)

Description of Occurrence:

On January 26, 1990, at 0846 hours, during performance of DB-MI-03205, Reactor Coolant Pump (RCP) Current Monitor to Steam and Feedwater Rupture Control System (SFRCS-JB) Channel 1 and Reactor Protection System (RPS-JC) Channel 1 surveillance test, the Station experienced a reactor trip from 73 percent thermal power. Prior to the trip, the Station had been operating with three of the four RCPs running. RCP 2-2 was shut down January 22, 1990, as a precautionary measure due to high indicated vibrations.

Plant response to the reactor trip was normal. Steam Generator pressure was reduced to approximately 970 psig to aid in fully reseating two main steam safety valves (MSSVs). One of the valves that did not initially reseal fully was SP17A7, which also did not fully reseal after the January 18, 1989, event. The identification of the other MSSV that did not fully reseal is not known. After stabilization, the operators found that Letdown Isolation Valve, MU2B, would not re-open. The inability to restore letdown flow resulted in the need to decrease RCP seal injection to slow the rate of pressurizer level increase. RCP 2-2 (the shutdown RCP) seal return temperature increased when seal injection flow was reduced. This resulted in seal return flow being isolated from RCP 2-2.

The reactor trip (RPS actuation) is reportable under 10CFR50.73(a)(2)(iv). Immediate notification was made to the NRC via the Emergency Notification System (ENS) at 1007 hours on January 26, 1990, per 10CFR50.72(b)(2)(ii).

Mode 5 was achieved on January 27, 1990, at 0345 hours to start the Sixth Refueling Outage.

Apparent Cause of Occurrence:

The plant tripped when RPS sensed that reactor power was above the trip limit for operation with only one RCP running in each reactor coolant loop. RPS received a signal that indicated there was only one pump running in each loop because RCP 1-2 test restoration induced a current transient in the RCP current monitor circuit making it look like RCP 1-2 was off. With RCP 2-2 actually off and RCP 1-2 appearing to be off, RPS reduced the high flux/number of RCPs trip setpoint to approximately 55 percent of full thermal power as designed. Since the plant was operating at 73 percent, RPS Channels 2, 3, and 4 tripped causing a reactor trip. RPS Channel 1 did not trip because it had been placed in manual bypass per the test procedure. The root cause of the induced current transient in the RCP monitor circuit for RCP 1-2 is still being investigated. The trip occurred while restoring the test setup that functionally checks the high and low current setpoints for RCP 1-2. RCP 1-1 circuits had been similarly tested just minutes earlier without incident.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Davis-Besse Unit No. 1	DOCKET NUMBER (2) 0500034690	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		0	02	0	03	OF	03

TEXT IF more space is required, use additional NRC Form 288A's (17)

The cause of the MU2B failure is not known yet. The valve will be inspected and cause of the failure determined during the ongoing refueling outage.

Analysis of Occurrence:

There were no challenges to the Safety Features Actuation System (SFAS-JE) or the Steam Feedwater Rupture Control System (SFRCS-JB). Key parameters remained in the normal post-trip band. Minimum RCS pressure was 1790 psig and maximum was 2175 psig. Steam generator pressures ranged from a maximum of 1076 psig to a minimum of 970 psig on SG 1-1 and a maximum of 1053 psig and minimum of 970 psig on SG 1-2. The transient from 73 percent would be expected to be less severe than a transient from 100 percent thermal power.

The MSSVs not fully reseating did not significantly affect proper SG pressure response as pressure was being controlled at approximately 1025 psig immediately post-trip. The operators lowered turbine header pressure to approximately 970 fully seat two MSSVs solidly.

Corrective Actions to Prevent Recurrence:

A troubleshooting plan is being developed to determine the cause of the apparent electrical transient in the RCP 1-2 current monitor circuit. Once the cause is known, appropriate corrective actions will be taken.

Previously scheduled inspections and maintenance are being performed on the MSSVs this outage.

Once the MU2B valve is inspected and the cause determined, appropriate corrective action will be taken.

RCP 2-2 seal was one of the three RCP seals previously scheduled to be replaced during the Sixth Refueling Outage with an improved seal cartridge design.

This LER will be revised upon availability of updated information.

Failure Data:

Until the cause of transient in the RCP current monitor circuitry is determined, relevant failure data cannot be assembled. This is the first LER (since all reactor trips became reportable in January 1984) where RPS reduced the high flux/number of pumps trip setpoint even though there were actually three of four pumps running.

REPORT NO.: NP33-90-002

PCAO NO.: 90-0036