NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: | | | | | | | (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1	LICENSEE CODE: O H D B S 1 (2)	LICENSE NUMBER: Ø Ø - Ø Ø N P F - Ø 3 (3)	LICENSE TYPE: 4 1 1 1 1 (4)	CAT: (5)

CON'T

0 1	REPORT SOURCE: L (6)	DOCKET NUMBER: Ø 5 Ø - Ø 3 4 6 (7)	EVENT DATE: Ø 5 2 1 7 9 (8)	REPORT DATE: Ø 6 1 5 7 9 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 On 5/21/79, the auxiliary feedwater (AFW) suction pressure switches PSL107C, PSL4928B,
0 3 and PSL4930A were found inoperable, and the pressure setpoints of PSL4929A, PSL4929B,
0 4 and PSL4931A were discovered to be outside of the specified tolerances. The station
0 5 was in Mode 5 at the time of occurrence and throughout the corrective action. At no
0 6 time would the above combinations of failures have caused inoperability of either AFW
0 7 trains. There was no danger to the health and safety of the public or station per-
0 8 sonnel. (NP-33-79-64)

0 9	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
	C H (11)	E (12)	E (13)	I N S T R U (14)	S (15)	Z (16)

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	7 9	—	Ø 6 2	/	Ø 3	L	—	Ø

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS (22)	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
A (18)	Z (19)	Z (20)	Z (21)	Ø Ø Ø Ø	Y (23)	N (24)	A (25)	S 3 8 2 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Component failure and instrument drift are the apparent causes of the inoperability.
1 1 Further investigation of the root cause of the failure will be conducted when the equip-
1 2 ment is returned to operation. On 5/22/79, the pressure switches were returned within
1 3 tolerance or replaced. The frequency of the testing will be increased to determine
1 4 the required calibration frequency.

1 5	FACILITY STATUS: G (28)	% POWER: Ø Ø Ø (29)	OTHER STATUS (30): NA	METHOD OF DISCOVERY: B (31)	DISCOVERY DESCRIPTION (32): NA

1 6	ACTIVITY RELEASED: Z (33)	CONTENT OF RELEASE: Z (34)	AMOUNT OF ACTIVITY (35): NA	LOCATION OF RELEASE (36): NA

PERSONNEL EXPOSURES

1 7	NUMBER: Ø Ø Ø (37)	TYPE: Z (38)	DESCRIPTION (39): NA

PERSONNEL INJURIES

1 8	NUMBER: Ø Ø Ø (40)	DESCRIPTION (41): NA

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LOSS OF OR DAMAGE TO FACILITY (43)

1 9	TYPE: Z (42)	DESCRIPTION: NA

PUBLICITY

2 0	ISSUED: N (44)	DESCRIPTION (45): NA

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NRC USE ONLY

DVR 79-077 NAME OF PREPARER James Nelson/Dean Hitchens PHONE: 419-259-5000, Ext. 233

TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
SUPPLEMENTAL INFORMATION FOR LER NP-33-79-64

DATE OF EVENT: May 21, 1979

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Failure of Auxiliary Feedwater (AFW) Suction Pressure Switches

Conditions Prior to Occurrence: The unit was in Mode 5, with Power (MWT) = 0, and Load (Gross MWE) = 0.

Description of Occurrence: During performance of Maintenance Work Order IC-269-79 on May 21, 1979 to satisfy surveillance requirements of Technical Specification 4.7.1.2.d, it was discovered that the Auxiliary Feedwater (AFW) suction pressure switches PSL-107C, PSL-4928B, and PSL-4930A would not actuate to their desired positions. In addition, during performance of this same maintenance work order, it was discovered that the AFW suction pressure switches PSL-4929A, PSL-4929B, and PSL-4931A would actuate at a pressure below the specified tolerances. Specific information on each pressure switch is provided on the attached tabulation. All of the switches were manufactured by Static-O-Ring, model numbers 12V2-E4-TTLLX3 and 6V2-E5-TTX4.

The station was in Mode 5 at the time of the occurrence and throughout the corrective action. This incident is being reported as documentation of a component failure.

Designation of Apparent Cause of Occurrence: The cause of the occurrence is component failure possibly due to vibration of the pressure switches. The three switches which would not actuate, even with 0 psig applied, were removed and a bench calibration was attempted. Although the switches could be adjusted to the required setpoint, subsequent calibration checks indicated that the actuation setpoint could not be repeated.

The setpoints of the remaining three failed switches had drifted outside of the specified tolerance.

The root cause of this occurrence is still under investigation.

Analysis of Occurrence: There was no danger to the health and safety of the public or to station personnel. PSL-107C, AFPT #2 Steam Inlet is one of four such switches. The logic behind their actuation is two out of four, and with this switch inoperable, the logic would not have been rendered inoperable. Of the remaining five defective switches, two were associated with AFP #1 suction pressure, and three were associated with AFP #2 suction pressure. On AFP #1, PSL-4928A&B measure "before strainer suction pressure" and PSL-4930A&B measure "after strainer suction pressure". On PSL-4930A&B the logic is such that either the "A" or "B" switch will provide the

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intended safety function. Since PSL-4930B actuated within the specified tolerance, the equipment would have operated as required. On AFP #2, PSL-4929A&B measure "before strainer suction pressure" and PSL-4931A&B measure "after strainer suction pressure". In the case of PSL 4931A&B switches, the "B" switch actuated within its specified tolerance; therefore, the equipment would have performed the intended safety function. The "before strainer suction" pressure switches PSL-4929A&B both did actuate, however, PSL-4929A actuated at 2.47 psig instead of the minimum allowed 2.8 psig and PSL-4929B actuated at 1.55 psig instead of the minimum allowed 2.8 psig.

Therefore, AFP 1-1 operation could have been affected by the defective pressure switches. AFP 1-2 would have operated properly except if the normal condensate tank supply to the AFW Pump 1-2 had failed, the automatic transfer to the service water supply would have transferred at 1.55 psig instead of the minimum allowed 2.8 psig.

AFP 1-2 would have provided the required supply of feedwater to the steam generators if the normal supply of condensate had failed. Also, the monthly performance of ST 5071.01, "AFW Monthly Test", when the unit was in operation, verified that both AFP suctions were automatically transferred upon a loss of normal condensate supply.

Corrective Action: On May 22, 1979, PSL-4929A, PSL-4929B, and PSL-4931A were recalibrated to within tolerance under Maintenance Work Order IC-269-79. The remaining three pressure switches PSL-4930A, PSL-4928B, and PSL-107C were replaced under Maintenance Work Order IC-272-79. Surveillance Test ST 5071.01, "Auxiliary Feedwater Monthly Test" will be performed to prove operability of the pressure switches prior to the unit startup.

A program is being instituted by the Instrument and Control section to investigate the possibility of vibration effects once the unit returns to power operation. In addition, until a calibration history on these switches can be determined, the frequency of calibration checks will be increased from once every eighteen months to once every three months. The required calibration frequency will be established from this historical data.

Failure Data: There have been no previously reported similar occurrences. This is the first time the calibration check has been performed since the setpoints on these switches were established.

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SWITCH NAME	NUMBER	DESIRED SETPOINT	AS FOUND READING	IMMEDIATE CORRECTIVE ACTION	AS LEFT READING
AFPT #2 Inlet Steam Pressure	PSL-107C	9.0 ± 1.0 psig (decreasing)	would not actuate with 0 psig applied	replaced switch	9.01 psig (decreasing)
AFP #1 Before Strainer Suction Pressure	PSL-4928B	3.3 ± 0.5 psig (decreasing)	would not actuate with 0 psig applied	replaced switch	3.29 psig (decreasing)
AFP #1 After Strainer Suction Pressure	PSL-4930A	1.0 ± 0.5 psig (decreasing)	would not actuate with 0 psig applied	replaced switch	1.00 psig (decreasing)
AFP #2 Before Strainer Suction Pressure	PSL-4929A	3.3 ± 0.5 psig (decreasing)	2.47 psig (decreasing)	recalibrated switch	3.33 psig (decreasing)
AFP #2 Before Strainer Suction Pressure	PSL-4929B	3.3 ± 0.5 psig (decreasing)	1.55 psig (decreasing)	recalibrated switch	3.19 psig (decreasing)
AFP #2 After Strainer Suction Pressure	PSL-4931A	1.0 ± 0.5 psig (decreasing)	would not actuate with 0 psig applied	recalibrated switch	0.95 psig (decreasing)