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: 1 Ø 2 3 7 8 (8)	REPORT DATE: 1 1 Ø 3 7 8 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 The investigation of the deficiencies concerning NRC General Design Criterion 17,
0 3 "Electric Power Systems", revealed insufficient automatic protection against reduced
0 4 grid frequency when the unit is operating with house loads on the Startup Transformers.
0 5 If a LOCA had occurred at the same time a low frequency condition occurred with the
0 6 unit loads supplied by the Startup Transformers, the operators could have manually
0 7 transferred essential loads to the Diesel Generators. (NP-32-78-11)
0 8

0 9	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
	E B (11)	B (12)	A (13)	Z Z Z Z Z Z (14)	Z (15)	Z (16)

(17) LER/RO REPORT NUMBER

EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
7 8	—	1 Ø 4	/	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
Z (18)	F (19)	Z (20)	Z (21)	Ø Ø Ø Ø	Y (23)	N (24)	A (25)	Z Z Z Z (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The degraded frequency protection associated with the secondary side circuit breakers
1 1 of the Startup Transformers was not specifically considered in the safety analysis.
1 2 The installation of low frequency sensing relays that will trip Transformers 01 and 02
1 3 secondary breakers will be accomplished at the first outage of sufficient duration
1 4 after procurement of required parts.

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

1 6	ACTIVITY RELEASED: N (33)	CONTENT OF RELEASE: N (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

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

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TOLEDO EDISON COMPANY
DAVIS-BESSE UNIT ONE NUCLEAR POWER STATION
SUPPLEMENTAL INFORMATION FOR LER NP-32-78-11

DATE OF EVENT: October 23, 1978

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Inadequate protection against degraded grid frequency with unit house loads on Startup Transformers 01 and 02.

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

Description of Occurrence: The investigation of the deficiencies concerning NRC General Design Criterion 17, "Electric Power Systems", revealed insufficient automatic protection against reduced grid frequency when the unit is operating with house loads on the Startup Transformers. If a Loss of Coolant Accident (LOCA) would occur while a low frequency condition existed and the unit loads were being supplied by the Startup Transformers, essential loads would not be transferred to the Diesel Generators. In the underfrequency condition, the electrical motors of the Low Pressure Injection Pumps would run at a reduced speed and may not be able to supply the minimum required flow.

Since this is a condition not specifically considered in the safety analysis which required remedial action, this report is being submitted in accordance with Technical Specification 6.9.1.8.

Designation of Apparent Cause of Occurrence: The cause of this occurrence is a design deficiency. The degraded frequency protection associated with the secondary side circuit breakers of the Startup Transformers was not specifically considered in the safety analysis.

Analysis of Occurrence: There was no danger to the health and safety of the public or to unit personnel. If a LOCA had occurred at the same time a low frequency condition occurred with the unit loads supplied by the Startup Transformers, the operators could have manually transferred essential loads to the Diesel Generators. The ECCS loads will safely operate at system frequencies down to 58.2 hertz.

Corrective Action: The installation of low frequency sensing relays on 13.8 KV Buses that will trip Transformers 01 and 02 secondary breakers at a frequency less than 58.2 hertz will be accomplished at the first outage of sufficient duration after procurement of required parts. As an interim measure, a Special Order exists which instructs operators to manually shift essential loads to both emergency diesel generators when grid frequency falls below 59.9 hertz.

Failure Data: There have been no previously reported degraded frequency design deficiencies.