NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

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

1 | 0 H D B S 1 (2) | Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø Ø (3) | 4 1 1 1 1 (4) | (5)
7 8 9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE 30 57 CAT 58

CON'T
1 | REPORT SOURCE L (6) | Ø 5 Ø - Ø 3 4 6 (7) | Ø 9 2 3 8 Ø (8) | 1 Ø 2 1 8 Ø (9)
7 8 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

2 (NP-33-80-88) On 9/23/80 at 2105 hours while performing surveillance testing on Diesel
3 Generator (DG) 1-2, the operator noted a "surging" in the engine. He then detected
4 smoke, and upon scanning the engine, discovered the turbocharger casing glowing red.
5 DG 1-2 was immediately tripped, and the fire brigade was called. There was no danger
6 to the health and safety of the public or station personnel. The fire was contained
7 in the exhaust piping and was extinguished as soon as the diesel was stopped. DG 1-1
8 was operable during this time.
7 8 9 80

9 SYSTEM CODE E E (11) | CAUSE CODE E (12) | CAUSE SUBCODE X (13) | COMPONENT CODE B L O W E R (14) | COMP. SUBCODE Z (15) | VALVE SUBCODE Z (16)
7 8 9 10 11 12 13 18 19 20

(17) LER/RO REPORT NUMBER: EVENT YEAR 8 Ø (21 22) | — (23) | SEQUENTIAL REPORT NO. Ø 7 1 (24 26) | / (27) | OCCURRENCE CODE Ø 3 (28 29) | REPORT TYPE L (30) | — (31) | REVISION NO. Ø (32)

ACTION TAKEN X (18) | FUTURE ACTION C (19) | EFFECT ON PLANT Z (20) | SHUTDOWN METHOD Z (21) | HOURS (22) Ø Ø Ø Ø (37 40) | ATTACHMENT SUBMITTED Y (23) | NPRD-4 FORM SUB. Y (24) | PRIME COMP. SUPPLIER A (25) | COMPONENT MANUFACTURER B 4 8 5 (26)
33 34 35 36 41 42 43 44 47

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The cause was a component failure. The turbocharger failed and released lubricating
11 oil into the exhaust chamber of the unit. The high exhaust temperature caused the
12 oil to ignite, thus causing a fire inside the exhaust pipe. Under MWO 80-3300, the
13 turbocharger and after-coolers were replaced. The lubricating oil and oil filters
14 were changed. On 10/1/80 at 0415 hours DG 1-2 was declared operable.
7 8 9 80

15 FACILITY STATUS H (28) | % POWER Ø Ø Ø (29) | OTHER STATUS (30) NA | METHOD OF DISCOVERY B (31) | DISCOVERY DESCRIPTION (32) Surveillance Test ST 5081.01
7 8 9 10 12 13 44 45 46 80

16 ACTIVITY RELEASED Z (33) | CONTENT OF RELEASE Z (34) | AMOUNT OF ACTIVITY (35) NA | LOCATION OF RELEASE (36) NA
7 8 9 10 11 44 45 80

17 PERSONNEL EXPOSURES NUMBER Ø Ø Ø (37) | TYPE Z (38) | DESCRIPTION (39) NA
7 8 9 11 12 13 80

18 PERSONNEL INJURIES NUMBER Ø Ø Ø (40) | DESCRIPTION (41) NA
7 8 9 11 12 80

19 LOSS OF OR DAMAGE TO FACILITY TYPE Z (42) | DESCRIPTION (43) NA
7 8 9 10 80

20 PUBLICITY ISSUED N (44) | DESCRIPTION (45) NA
7 8 9 10 68 80

8010270388

NRC USE ONLY

DVR 80-167 NAME OF PREPARER James Syslo PHONE: (419) 259-5000, Ext. 253

TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
SUPPLEMENTAL INFORMATION FOR LER NP-33-80-88

DATE OF EVENT: September 23, 1980

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Emergency Diesel Generator #2 turbocharger failure

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

Description of Occurrence: On September 23, 1980 at 2105 hours, during the performance of ST 5081.01, T-4944 (Diesel Generator Monthly Test 24 Hour Run) on Diesel Generator (DG) 1-2, the operator noted a "surging" in the engine. This occurred during the last two hours of the test with the engine at 110% load. As the operator was scanning the control panel, he smelled smoke. Upon scanning the engine, he saw the turbocharger casing glowing red and immediately tripped the Diesel Generator. The fire brigade was called. The fire was contained in the exhaust stack and extinguished itself when the engine was stopped. The diesel fuel was shut off at the day tank. The soak back pump was de-energized. The fuses were removed for AD 101 (#2 DG output breaker). The Station Technical Advisor, Emergency Duty Officer and Station Superintendent were notified. D. Brinkman of the NRC was also notified for information only.

The factory representative was immediately called in to be on hand as the number two DG was disassembled to determine the amount of damage. The results of this inspection are as follows:

1) The vanes of the intake fan had contacted the turbocharger casing. This caused excessive heating (indicated by burnt spots) and also caused the vanes to break off from the hub.

2) The drive shaft to the fan was apparently broken.

3) The exhaust turbine section of the turbocharger was badly charred and the internal components were damaged by the fire in the exhaust chamber.

4) Metal particles carried through the air intake manifolds, causing severe impingment on the after oil coolers. Metal particles were also found in the air intakes to the cylinders.

5) All of the gears in the diesel drive train were found to be damaged. There was severe marking and scoring evident on all gears.

6) The oil seals in the turbocharger were found to have failed.

No power reduction was necessary as the plant was in Mode 5. Being in Mode 5, the station did not enter the action statement of Technical Specification 3.8.1.2. The technical specification requires only one diesel generator to be operable in this mode. DG 1-1 was operable during this time. This event is being reported to document a component failure.

Designation of Apparent Cause of Occurrence: The apparent cause of this occurrence was a component failure. It is apparent that the oil seal in the turbocharger failed and released lubricating oil into the diesel exhaust chamber of the unit. The high exhaust temperature caused the oil to ignite, and this caused a fire in the exhaust chamber. The fire heated the casing to a glowing "cherry red" condition. This apparently caused the casing to warp which may have caused the damage which resulted to the turbocharger shaft, fan, and diesel gearing.

Analysis of Occurrence: There was no danger to the health and safety of the public or to station personnel. The emergency diesel generator electrical generation capacity is a redundant system and number one diesel generator was operable. The fire was contained in the exhaust piping and was extinguished as soon as the diesel was stopped.

Corrective Action: The following maintenance was completed under Maintenance Work Order 80-3300. The turbocharger and the diesel generator drive train gears were replaced with new components. The oil coolers were also replaced with new components. The intake manifolds were flushed and vacuumed. The lubricating oil and oil filters were changed. After reassembly, the diesel generator was successfully tested under ST 5081.01 (24 hour run). Diesel Generator 1-2 was declared operable at 0415 hours on October 1, 1980. The failed turbocharger was returned to the vendor for a factory teardown analysis. Toledo Edison is investigating vendor recommendations to improve turbocharger service life.

Failure Data: There have been two previous turbocharger failures; the first occurred on February 8, 1978, see Licensee Event Report NP-33-78-21 (78-018); the second occurred on March 30, 1979, see Licensee Event Report NP-33-79-49 (79-046).

LER #80-071