

CONTROL BLOCK:          ①

PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION

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R		LICENSEE CODE						14	15	LICENSE NUMBER										26	28	LICENSE TYPE				30	57	CAT		60

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REPORT SOURCE L 6 0 5 0 0 0 4 1 6 7 0 7 2 6 8 3 8 0 3 2 7 8 4 9

DOCKET NUMBER EVENT DATE REPORT DATE

**EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)**

02 On 7/26/83, during a test, the mounting bolts for a Div. I D/G turbo-charger were found to be either loose or broken. During this and subsequent tests and inspections, associated parts and welds were discovered cracked or broken. The requirements of T.S. 3.8.1.2 were met. The event had no effect on the health and safety of the public nor was there a threat to plant safety. This is reported pursuant to T.S. 4.8.1.1.3. This is a final report.

SYSTEM CODE E E (11)		CAUSE CODE B (12)		CAUSE SUBCODE B (13)		COMP. SUBCODE Z (15)		VALVE SUBCODE Z (16)	
EVENT YEAR 8 3 (21) (22)		SEQUENTIAL REPORT NO. 1 0 7 (24) (25) (26)		OCCURRENCE CODE / (27)		REPORT TYPE X (28) (29)		REVISION NO. 2 (32)	
ACTION TAKEN B (18)		FUTURE ACTION Z (19)		EFFECT ON PLANT Z (20)		SHUTDOWN METHOD Z (23)		HOURS 0 0 0 0 (22) (23) (24) (25)	
ATTACHMENT SUBMITTED Y (26)		NPRD-4 FORM SUB. N (24)		PRIME COMP. SUPPLIER A (25)		COMPONENT MANUFACTURER D 0 5 5 (26) (27) (28) (29)			

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The failures of the bolts are attributed to turbocharger misalignment.

11 The cracked components were due to turbocharger vibration after the

12 bolts failed. The cracks were weld repaired, & longer bolts were used to

13 remount & realign the turbocharger. During subsequent tests, bolts on the

14 LB turbocharger failed again due to the alignment problem (SR 84-007).

FACILITY STATUS (1) 5 (8) 28 (29) NA  
 % POWER (10) 0 (11) 0 (12) 0 (13) NA  
 OTHER STATUS (30)  
 METHOD OF DISCOVERY (31) B Surveillance Testing  
 DISCOVERY DESCRIPTION (32)  
 ACTIVITY CONTENT  
 RELEASED OF RELEASE (1) 6 (8) 2 (9) 33 (34) NA  
 AMOUNT OF ACTIVITY (35)  
 LOCATION OF RELEASE (36) NA

PERSONNEL EXPOSURES									
NUMBER			TYPE	DESCRIPTION					
1	7	0	0	0	37	Z	38	NA	39

PERSONNEL INJURIES		NUMBER		DESCRIPTION	
1	8	0	0	0	HA

LOSS OF OR DAMAGE TO FACILITY (43)  
TYPE DESCRIPTION  
1 9 7 8 9 10  
7 8 9 10  
S PDR  
PDR ADOCK 05000416  
S PDR  
1122

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

PUBLICATION ISSUED DESCRIPTION (45) NRC USE ONLY

2 0 44 45

NAME OF PREPARER R. W. Eyrd

PHONE

NRC USE ONLY

1-800-841-7-928

Supplementary Information to  
LER 83-107/03 X-2

Mississippi Power & Light Company  
Grand Gulf Nuclear Station - Unit 1  
Docket No. 50-416

Technical Specification Involved: 4.8.1.1.3  
Reported Under Technical Specification: 6.9.1.13.b

Event Narrative

On July 26, 1983, during a routine visual inspection 92 minutes into a 24 hour surveillance test run of the Division I Diesel Generator, the bolts that hold the left bank turbocharger to its support or mounting plate were discovered to be either loose or broken. Four 5/18-11x2" SAE grade 5 capscrew bolts are used to mount the turbocharger. Two of the four bolts for the LB turbocharger were broken and the others were loose. One of the bolts had sheared off and the broken part remained in the LB turbocharger housing. All of the bolts, except the one sheared off, were replaced and torqued to 60 ft-lbs. No other damage was apparent.

As a precaution, the Division II Diesel Generator turbocharger bolts were inspected. Two bolts were found loose, one on each turbocharger; in addition, two bolts on the LB turbocharger were not of the type specified by the manufacturer. The incorrect bolts were replaced and all the bolts were torqued to 60 ft-lbs.

On July 27, 1983, the Division I Diesel Generator was 9 hours into a 24 hour surveillance test run when mounting bolts on the turbocharger were again inspected and found to be either loose or broken. The Diesel Generator was manually shutdown for repairs. Subsequent inspections and tests, including short maintenance runs, over the next 3 weeks revealed the following:

1. cracked welds in the RB and LB intercooler adapters which are between the intercoolers and turbochargers,
2. a base metal crack (1" long) in the LB intercooler,
3. a through wall crack in the weld between the RB turbocharger and the cooling water discharge piping,
4. A through wall crack in the weld between the LB turbocharger and the cooling water discharge piping, and
5. two broken mounting bolts in the LB turbocharger.

The cracked welds were weld repaired. The LB turbocharger was replaced and the mounting bolts were changed from 5/8"-11x2" SAE grade 5 capscrew bolts to 5/8"-11x2½" SAE grade 5 capscrew bolts. Flat washers were added under the existing lock washers. The turbocharger was realigned to eliminate an air gap between it and the mounting base.

The misalignment is believed to be the root cause of the bolt failures. The bolt failures allowed relative movement between the turbocharger and its mounting base plate; the resulting vibration caused fatigue cracking in the attached piping and intercooler adapters. All applicable corrective actions have also been performed on the Division II Diesel Generator.

A spot check radiography of 10 butt welds at random locations on the jacket water, lube oil, and starting air systems was performed on the Division I Diesel Generator. One weld which did not meet acceptance criteria, was weld repaired.

On August 21, 1983, the Division I Diesel Generator completed a successful 40 hour maintenance run with no problems. It was restarted 2 hours later to begin a 24 hour surveillance test. Approximately 8½ hours later, a second thru wall crack developed in the weld between the LB turbocharger and the cooling water discharge piping. This was weld repaired and is attributable to the conditions generated by the original turbocharger bolt problem. The torque was checked on all of the turbocharger mounting bolts after 48½ hours of operation since the bolt change and there was no decrease in five bolts and no appreciable change in the other three.

On August 30, 1983 (Reference LER 83-136/03 X-2), a base metal crack was discovered in the LB turbocharger intercooler adapter 98 minutes into a 24 hour surveillance test. The crack was weld repaired. This event was also attributed to the conditions generated by the original bolt problem.

A design change was initiated to replace all of the coolant piping associated with the turbochargers. This was performed during the diesel repairs as a result of the fuel oil fire of September 4, 1983 (Reference LER 83-126/01 T-0). In addition, all equipment alignments associated with the turbocharger were checked and corrected as necessary.

During subsequent tests on January 31 and February 10, 1984, bolts again failed on the Division I Diesel Generator LB turbocharger (reported in Special Report 84-007/0). The failures on January 31 and February 10 were again attributed to misalignment of the turbocharger. A Maintenance Work Order (MWO) utilizing Special Instructions designed to preclude misalignment was implemented. The alignment is now corrected.



# MISSISSIPPI POWER & LIGHT COMPANY

*Helping Build Mississippi*

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

84 MAR 2 10:00  
March 27, 1984

NUCLEAR PRODUCTION DEPARTMENT

U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., N.W., Suite 2900  
Atlanta, Georgia 30303

Attention: Mr. J. P. O'Reilly, Regional Administrator

Dear Mr. O'Reilly:

SUBJECT: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-13  
File: 0260/L-835.0  
Update Report - Mounting Bolts on  
Division I Diesel Generator  
Turbocharger Found Loose or  
Broken  
LER 83-107/03 X-2  
AECM-84/0169

This letter submits an update to previous reports submitted on August 26, 1983 and October 24, 1983. The event for which the report was submitted occurred on July 26, 1983, when during a 24 hour test run some of the mounting bolts for a Division I Diesel Generator turbocharger were found to be either loose or broken. During subsequent tests and inspections, cracked welds were found on the intercooler adapter between the intercooler and turbocharger and in the cooling water outlet piping. The diesel generator had been loaded to greater than 50% for longer than 1 hour, therefore, this was considered a valid successful test pursuant to Regulatory Position C.2.e.(3) of Regulatory Guide 1.108. This was reported pursuant to Technical Specification 6.9.1.13.b.

Our investigation into the cause of the event and corrective action to prevent recurrence is complete. This is a final report. Attached is LER 83-107/03 X-2 with Supplementary Information.

Yours truly,

L. F. Dale  
Manager of Nuclear Services

EBS/SHE:rg  
Attachment

cc: See next page

MISSISSIPPI POWER & LIGHT COMPANY

AECM-84/0169

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