

**LICENSEE EVENT REPORT**

CONTROL BLOCK: 

						(1)
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(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	M		S	G	G	S	1	2	0	0	-	0	0	0	0	-	0	0	3	4	1	1	1	1	4	5					
7	8	LICENSEE CODE							14	15	LICENSE NUMBER										26	28	LICENSE TYPE					30	37	CAT		36

CON'T

REPORT SOURCE: 01 L 6 0 5 0 0 0 4 1 6 7 1 0 0 4 8 2 8 0 3 2 1 8 4 9  
7 8 65 61 DOCKET NUMBER 65 65 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 7 With the unit in Cold Shutdown, a special inspection on the Division 2  
0 3 Standby Diesel Generator was conducted. During this inspection, one of  
0 4 the capscrews which secures the rear crankcase cover to the engine block  
1 5 was discovered to be defective. This report is submitted pursuant to  
0 6 T.S.G. 9.1.12.e and i. The event had no effect on the health and safety  
0 7 of the public and did not constitute a threat to plant safety. The  
0 8 Div. 1 and 3 D/Gs were operable at the time the defect was discovered.

2 9		SYSTEM CODE E E		11	CAUSE CODE B		12	CAUSE SUBCODE B		13	COMPONENT CODE E N G I N E				14	COMP. SUBCODE Z		15	VALVE SUBCODE Z		16				
8		9	10		11		12		13					14		15		16							
17		EVENT YEAR 8 2		21	SEQUENTIAL REPORT NO. 0 8 0		24	OCCURRENCE CODE 0 1		28	REPORT TYPE X		30	REVISION NO. 4		32									
18		22			26			29			31			32											
ACTION TAKEN A		FUTURE ACTION Z		33	EFFECT ON PLANT Z		35	SHUTDOWN METHOD Z		36	HOURS 0 0 0 0		40	ATTACHMENT SUBMITTED Y		41	NPRD-4 FORM SUB. N		42	PRIME COMP. SUPPLIER A		43	COMPONENT MANUFACTURER D 0 5 5		47
33		34			35			36			37			41			42			43		44		47	

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The capscrew broke while being checked for the correct torque.

1 1 It is believed that the capscrew had partially cracked due to fatigue

1 2 during engine operation prior to the torque check. The capscrew and

1 3 20 others were replaced. A design change has been completed which

1 4 replaced the original capscrews with higher strength capscrews.

FACILITY STATUS (28) 1 5 8  
 % POWER (29) 0 0 0  
 OTHER STATUS (30) NA  
 METHOD OF DISCOVERY (31) C  
 DISCOVERY DESCRIPTION (32) Special Inspection by Maintenance

ACTIVITY CONTENT  
RELEASED OF RELEASE

1 6 7 8 9 10 11

33 34 NA

AMOUNT OF ACTIVITY (35)

NA

LOCATION OF RELEASE (36)

PERSONNEL EXPOSURES									
NUMBER		TYPE		DESCRIPTION					
1	7	0	0	0	37	2	38	NA	39

PERSONNEL INJURIES		NUMBER		DESCRIPTION	
1	14	0	0	0	40

1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60	
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PUBLICITY  
 ISSUED (44) DESCRIPTION (45)  
 2 0  
 7 8 9 10  
 S PDR ADDOCK 05000416 PDR  
 NRC USE ONLY

NAME OF PREPARER Ron Byrd

PHONE:

**NRC USE ONLY**

000 017.020

Supplementary Information to  
LER 82-080/01 X-4

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

Technical Specification Involved: N/A  
Reported Under Technical Specification: 6.9.1.12.e and 1

Event Narrative

This is an update to a previous report submitted on August 31, 1983. The following paragraphs describe the event reported.

The special inspection of the 21 capscrews which secure the rear crankcase cover to the engine block of the Division 2 Standby Diesel Generator revealed that one capscREW had failed. The capscrews were SAE Grade 5, 5/8 NC x 1-3/4".

The maintenance work order which led to the discovery of the failed capscREW had been initiated as follow-up to a previous, similarly failed capscREW on the same Division 2 Standby Diesel Generator rear crankcase cover. This situation was previously reported to the NRC in Potentially Reportable Deficiency (PRD) 82/14 under 10CFR50.55e. The first failure occurred on March 15, 1982, during the 24-hour load test performed during the Pre-Operational Test Program. The failure of March 15, 1982, resulted in a generator fault caused by the head of the broken capscREW becoming lodged between the generator stator and rotor while the generator was at 100% load. This resulted in the generator tripping on Generator Differential Current. The generator was subsequently replaced. The capscrews securing the rear crankcase cover were inspected for correct tightness and found to be below the required 60 ft-lbs. The capscrews were replaced on both Division 1 and 2 Diesel Generators and torqued to the required 60 ft-lbs.

The follow-up work order, performed on October 4, 1982, instructed that each of the capscrews securing the rear crankcase cover to the engine block be checked for correct torque (60 ft-lbs). Three of the capscrews were found to be less than 40 ft-lbs (20, 23, and 35 ft-lbs). The work order further instructed that any capscrews not within  $\pm 2$  ft-lbs of the required 60 ft-lbs be torqued within the acceptable range. When the capscREW (which was found at 20 ft-lbs originally) was tightened it sheared off approximately one inch from the bottom side of the head before reaching 60 ft-lbs. Another work order was subsequently issued and the 21 capscrews on the Division 2 Diesel Generator rear cover were replaced with new replacement capscrews and torqued to 60 ft-lbs. An inspection of the Division 1 Diesel Generator revealed no problems (the Division 3 Diesel Generator is supplied by a different manufacturer so no inspection was required).

Nuclear Plant Engineering has attributed the cause of failure to fatigue cracking. A Design Change (DCP 82/4183) has been completed which replaced the original crankcase capscrews with a higher (SA540 Grade B24) strength type on both Division 1 and 2 Diesel Generators. Design Change Package (DCP) 82-0039 installed protective screens on the generator air gaps to prevent the entrance of foreign materials which could result in generator damage.

A test program was developed, the Division 2 diesel was instrumented and data was collected during a test run. This data was considered unacceptable. MP&L plans to perform additional testing and vibration analysis. However, based on inspections of bolts removed from the covers since that time, we conclude that the high strength bolts and the protective screens are adequate to prevent recurrence. This is submitted as a final report.



# MISSISSIPPI POWER & LIGHT COMPANY

*Helping Build Mississippi*

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

84 MAR 26 10:19

March 21, 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 - Division 2 Standby  
Diesel Generator Rear Crankcase  
Cover Capscrew Defective  
LER 82-080/01 X-4  
AECM-84/0168

This letter submits an update to a previous update report submitted on August 31, 1983. The event for which the report was submitted occurred on October 4, 1982, when during a special inspection, one of the capscrews which secure the rear crankcase cover to the engine block of the Division 2 Standby Diesel Generator was discovered defective. The report was submitted pursuant to Technical Specification 6.9.1.12.e and i.

A design change (DCP 82/4183) has been completed which replaced the original crankcase bolts with a higher strength grade. Design Change Package 82/0039 installed protective screens on the generator air gaps to prevent the entrance of foreign materials which could result in generator damage.

As reported in the last update, a test program was developed, the Division 2 diesel was instrumented and data was collected during a test run. This data was considered unacceptable. MP&L plans to perform additional testing and vibration analysis. However, based on inspections of bolts removed from the covers since that time, we conclude that the high strength bolts and the protective screens are adequate to prevent recurrence. This is submitted as a final report. Attached is LER 82-080/01 X-4 with Supplementary Information.

Yours truly,

L. F. Dale  
Manager of Nuclear Services

EBC/SHH:rg  
Attachment

cc: See next page

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Member Middle South Utilities System

1022 1/1

MISSISSIPPI POWER & LIGHT COMPANY

AECM-84/0168

Page 2

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