



MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

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February 20, 1984

JAMES P. MCGAUGHY, JR.
VICE PRESIDENT

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
License No. NPF-13
File 0260/L-860.0/M-018.0
GGNS Standby Diesel Generators,
Comprehensive Reliability
Report and Status
AECM-84/0103

Mississippi Power & Light Company (MP&L) is providing this submittal along with the enclosed information to describe the comprehensive program undertaken by MP&L to enhance and verify the reliability and performance of the two Transamerica Delaval, Inc. (TDI) diesel generators (D/G) installed at Grand Gulf Nuclear Station (GGNS). This submittal addresses the sixteen (16) potentially significant issues as identified in the TDI Owner's Group meeting with the NRC on January 26, 1984, as well as some informal requests for information by the NRC Staff in a meeting with MP&L on January 27, 1984. This submittal is also provided to address and resolve several commitments made by MP&L in previous submittals and to provide up-to-date status on significant actions taken on the GGNS engines. In addition, some previous responses to NRC requests for information are provided again for convenience of review.

The concern over the design adequacy of the TDI D/G was prompted by a crankshaft failure that occurred at Shoreham with their TDI supplied eight cylinder standby D/Gs. Investigations revealed that the cause of the crankshaft failure was high cycle fatigue. This led the NRC to issue IE Information Notice 83-58 which identified GGNS as having TDI supplied standby D/Gs with possible crankshaft design deficiencies. Though there are several major design differences between the in-line eight cylinder Shoreham engine and the sixteen cylinder Vee-type GGNS engines, MP&L began a series of inspections, tests, maintenance activities, and evaluations related to TDI D/G reliability. MP&L's evaluations considered other components in addition to the crankshaft. A chronological listing of recent, significant events related to MP&L's D/Gs is presented as Attachment 1.

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Attachment 2 contains MP&L's comprehensive report on TDI D/G reliability. This report contains a description of the inspections, component replacement, engine testing, and engineering evaluations which have been undertaken by MP&L to enhance and verify the reliability and performance of the two TDI D/Gs at GGNS.

Since early December, 1983, significant work activities have been completed on the Division I and II engines. These include:

- All piston skirts have been replaced with skirts of improved design.
- All cylinder heads have been inspected and eight (8) cylinder heads with rejectable indications have been replaced.
- All connector push rods have been replaced with components of improved design.
- All connecting rod bearings have been replaced.
- Inspection of both crankshafts has been completed.
- Rework of turbocharger piping and components using ASME welding, procedures and materials has been completed.
- Both Division I and II D/Gs have undergone post maintenance testing which was more strenuous than that recommended by TDI.

These work activities are discussed in detail in Attachment 2 and are intended to enhance engine performance and reliability. In the activities described above, the condition of the components inspected or replaced did not impair the operation of the GGNS D/Gs.

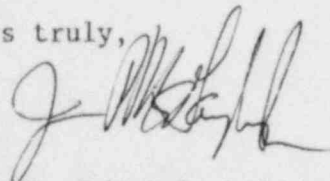
Also included in Attachment 2 are details of the sixteen (16) potentially significant concerns presented to the NRC by the TDI D/G Owners' Group on January 26, 1984, their applicability to GGNS, and corrective actions taken, where necessary, for each concern.

In letter, AECM-83/0811, dated December 23, 1983, MP&L formally notified the NRC of the formation of a TDI D/G Owners' Group. MP&L was instrumental in formation of the Owners' Group. MP&L has devoted significant management attention to this issue and has assumed an active role in that Mr. J. P. McGaughy, Vice President - Nuclear of MP&L, was elected Chairman of the Owners' Group and Mr. C. W. Angle, Manager of Operational Analysis, was elected Program Administrator. MP&L, as a member, will support and participate fully in the group's Design Review/Quality Revalidation (DRQR) program. MP&L is committed to implementing the group's recommendations, as they apply to GGNS, unless exceptions are fully justified.

Since our meeting with your staff on January 27, 1984, MP&L has devoted significant resources toward the development of the attached report, particularly in the area of the sixteen potentially significant issues identified by the TDI D/G Owners' Group. It should be noted that several of the issues were identified to MP&L in late January, 1984. In all cases MP&L has attempted to provide in the attachment essentially all of the significant details available at this time. MP&L is prepared to meet with your staff at your request to discuss the subject issues and provide any additional information or explanations necessary to support your review.

Overall, MP&L considers that the substantial evaluation, inspection, maintenance, and testing effort put forth to date establishes the GGNS standby diesel generators as reliable emergency power supplies. MP&L recognizes, however, the overall concern of the NRC and the industry regarding TDI D/G reliability and, therefore, fully supports the Owners' Group program to verify that reliability. In the interim, until the DRQR program has been completed as it applies to GGNS, MP&L proposes additional measures to further establish confidence that the power supply network, onsite and offsite, is reliable and supports the plant's safe operation. A meeting has been scheduled with your staff for February 21, 1984, to discuss these proposed interim measures to enhance power supply reliability. The effort put forth on the GGNS engines to date, MP&L's active participation in the TDI D/G Owners' Group, and our aggressive action to provide additional reliability enhancements demonstrate our intentions to be fully cooperative and responsive to your staff in this matter and our commitment to the safe operation of GGNS.

Yours truly,



JPM:lm

- Attachments:
- 1) Grand Gulf Standby D/G Reliability, Chronology of Recent, Significant Events
 - 2) Comprehensive Report on Significant Activities to Enhance and Verify GGNS TDI D/Gs
 - 3) Repeat Submittal of Selected MP&L Responses to Formal NRC Questions
 - a) MP&L Response to NRC Question 430.1
 - b) MP&L Response to NRC Question 430.2
 - c) MP&L Response to NRC Question 430.3
 - d) MP&L Response to NRC Question 430.5
 - e) MP&L Response to NRC Question 430.9
 - f) MP&L Response to NRC Question 430.10
 - g) MP&L Response to NRC Question 430.13(1)
 - h) MP&L Response to NRC Question 430.13(2)
 - i) MP&L Response to NRC Question 430.13(3)
 - j) MP&L Response to NRC Question 430.13(4)
 - k) MP&L Response to NRC Question 430.13
(Last Paragraph)
 - l) MP&L Response to NRC Question 430.17

cc: (See Next Page)
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MISSISSIPPI POWER & LIGHT COMPANY

cc: Mr. J. B. Richard (w/a)
Mr. R. B. McGehee (w/o)
Mr. T. B. Conner (w/o)
Mr. G. B. Taylor (w/o)

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GRAND GULF STANDBY D/G RELIABILITY,
CHRONOLOGY OF RECENT, SIGNIFICANT EVENTS

8/83 Shoreham D/G crankshaft failure

10/14/83 MP&L submittal: qualitative discussion, comparing Shoreham and GCNS crankshaft design

10/24/83 NRC issued informal questions on TDI D/Gs

10/24/83 MP&L sponsored industry wide D/G Meeting. D/G Users Group formed.

10/26/83 MP&L submittal: initial report on GCNS D/Gs operating experience

10/28/83 NRC/MP&L meeting: TDI D/G reliability presentation by MP&L

10/31/83 NRC issued formal questions to MP&L regarding TDI D/Gs

11/15/83 MP&L submittal: partial response to NRC questions. Major outstanding issues: crankshaft
piston skirts
connecting rod bearings

11/29/83 D/G Users Group met with TDI on major issues.

12/83 Div II D/G disassembly: inspection/maintenance

12/23/83 MP&L submittal: formal advisement of formation of TDI D/G Owners' Group

12/27/83 NRC issued revised formal questions

1/84 Completion of major inspection/maintenance items on Div II D/G. Commenced disassembly of Div I D/G

1/14/83 Draft MP&L responses provided to NRC on all outstanding formal questions

1/16/84 Finalization of D/G Owners' Group draft DRQR program

1/18/84 MP&L submittal of responses to all outstanding formal questions: essentially current through Div II D/G inspection/maintenance

1/26/84 NRC/Diesel Generator Owners' Group Meeting, Presentation of draft DRQR Program

1/27/84 NRC/MP&L Meeting: TDI D/G reliability presentation by MP&L

2/84 Completion of major inspection/maintenance items on Div I D/G

2/16/84 MP&L draft submittal to NRC: GCNS Standby D/G Comprehensive Report

GRAND GULF STANDBY D/G RELIABILITY,
CHRONOLOGY OF RECENT, SIGNIFICANT EVENTS

- 2/20/84 MP&L Formal submittal to NRC: Comprehensive Report on GGNS
Standby D/G Reliability
- 2/21/84 MP&L/NRC Meeting scheduled - Interim Measures to Enhance Onsite/
Offsite Power Supplies