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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 17 1984

Docket No. 50-416

Mr. L. F. Dale, Director
Nuclear Licensing and Safety
Mississippi Power & Light Company
P.O. Box 1640
Jackson, Mississippi 39205

Dear Mr. Dale:

Subject: Request for Additional Information -
TDI Engine Inspection

At the conclusion of the meeting held on July 13, 1984, to discuss your TDI engine inspection results, the staff enumerated their request for further supporting information and actions. A copy of their request is given in the enclosure. Please provide your responses to items A, B and C of the enclosure by July 20, 1984, and to item D by July 27, 1984. If you wish clarification of this request or if you cannot meet these dates, please advise M. D. Houston at (301) 492-8358.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosure:
As stated

cc: See next page

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REQUEST FOR ACTIONS AND INFORMATION FROM MP&L

GRAND GULF TDI DIESEL ENGINE

During the July 13, 1984 meeting between MP&L and the NRC staff and its PNL consultants, the NRC requested actions and documentation addressing the following areas:

A. MP&L should commit to the following Augmented Maintenance/Surveillance Program. This program should incorporate the MP&L proposals as provided in the July 5, 1984 submittal subject to the following revisions.

1. (Reference: MP&L report, Section 6.1)

Air roll tests should be performed four hours and 24 hours after each engine shutdown and prior to planned engine starts.

2. (Reference: MP&L report, Section 6.3)

Frequency of visual inspections of con rods and preload check of con rod bolts should be every 200 hours of engine operation or nine calendar months, which ever occurs first. These inspections should be performed on the Division II engine prior to plant operation above 5% power.

3. (Reference: MP&L report, Section 6.4)

An additional requirement should be added to take a lube oil sample once per month while the engine is running.

4. (Reference: MP&L report, Section 6.5)

Revise to assure that 100% of the air start capscrews will be

inspected for torque per the schedule proposed by MP&L.

5. (Reference: MP&L report, Section 6.7)

Some clarification in the terms used in the MP&L July 5, 1984 submittal is requested. Also one item of surveillance, engine load, was not addressed. The following changes in Section 6.7 of the MP&L submittal are therefore recommended:

- p. 57 Discussion, add the word "hourly" after recorded in line 2.
- p. 58 Replace as noted:
 - ° "lube oil pressure" to "engine inlet lube oil pressure"
 - ° "combustion air L.P. pressure" and "combustion air R.B. pressure" to "air manifold pressure L.B. and R.B."
 - ° "jacket water pressure" to "jacket water pressure in and out"
 - ° "cylinder temperatures" to "all cylinder exhaust temperatures"
 - ° add "engine load"
- p. 59 MP&L Proposed Action, add "or each refueling cycle, whichever occurs first," after "operation in line 3.
- p. 59 Add a new item of surveillance, namely "check the rotor float of at least one turbocharger and inspect stationary nozzle ring bolts, after 270 hours of operation or at the first refueling outage, whichever comes first."
- p. 64 Table 6-2, add "clear water system (flush out)" with frequency of three to four years.

- B. MP&L should take appropriate steps to ensure that the TDI engines are not unnecessarily loaded above 185 psig BMEP during a loss of offsite power, and fully document how this has been accomplished.
- C. MP&L should proposed changes to the plant Technical Specifications to specify that monthly and 18 month surveillance testing shall be conducted at an engine load corresponding to 185 psig BMEP (brake mean effective pressure).
- D. MP&L should supplement its July 5, 1984 submittal with the following information:
 - 1. The metallographic analysis confirming that the turbocharger bolt failure was due to intergranular stress corrosion.
 - 2. Results of the turbocharger inspection by Elliot.
 - 3. A detailed description of the method used and the results to confirm the surface area contact of the connecting rod serrated surface is at least 75% for all rods.
 - 4. Documented results of measurements of the cylinder head fire deck surface flatness.
 - 5. The inspection, engineering and metallurgical evaluation reports confirming the acceptability of the two cylinder heads containing cracks in the stellite seats.
 - 6. Information regarding whether cylinder heads studs were replaced by stud of the same or different designs.
 - 7. A description of the indications noted and the engineering disposition concerning the relative motion between the piston crown and skirt.
 - 8. Documented crankshaft deflections relative to TDI specifications.

9. Crankshaft torsographs and preturbine exhaust temperature data at 0%, 25%, 50%, 75%, and 100% of engine nameplate loading. (these data should be taken prior to plant operation above 5% power). Regarding the torsographs, the staff is specifically interested in the vibratory amplitudes of the criticals at 450 RPM.
10. Status of MP&L investigation of recent failures to start of the Division 1 engine (LERs 84-016, 84-023).
11. In addition to leaks addressed in MP&L's February 20, 1984 report, MP&L has experienced several other instances of fuel-oil line leaks; 9/1/83, Division 1; 9/23/83, Division 1; 10/22/83, Division 2; 10/28/83, Division 1; 10/26/83, Division 2; and 11/5/83, Division 2. Provide a description of the root causes of these leaks and corrective actions taken by MP&L to prevent recurrence.
12. Describe the circumstances and cause of the air start valve failure on 9/17/83 (Division 1). Why didn't the preventive maintenance program described in LER 83-082 prevent this failure?
13. Describe the circumstances of the stuck open air start solenoid valve failure on 1/8/84 (Division 2), and corrective actions taken to prevent recurrence.
14. Describe the circumstances of the stuck fuel pump event on 8/19/83. (Division 1), and corrective actions taken.
15. Describe the circumstances of the cracks in the airbox on 10/28/83 (Division 2), its potential impact upon engine operability, and corrective actions.