

NOV 06 1984

Docket No. 50-416

LICENSEE: Mississippi Power & Light Company

FACILITY: Grand Gulf Nuclear Station, Unit 1

SUBJECT: SUMMARY OF JUNE 4-5, 1984 SITE VISIT TO OBSERVE THE TDI  
DIESEL INSPECTION

On June 4 and 5, 1984, the staff and their consultants visited the Grand Gulf site to discuss and observe the TDI diesel engine inspection. The Division I engine was required to be torn down and inspected by the May 22, 1984 Order. A public meeting was held in the Emergency Response Center at the start and wrap-up of the site visit. These meetings were attended by representatives of NRC, NRC consultants, MP&L, MP&L consultants, DOE and JULEP (a public participant). The attendance lists for both days are enclosed (Enclosure 1 and 2). A copy of the inspection status for the engine is also enclosed (Enclosure 3).

On June 4, 1984, MP&L summarized the inspection results that had been obtained to date on the Division I TDI diesel engine. Approximately 85% of the inspections had been performed and only a few problem areas noted. These problems included: minor indications at the serrated faces on the connecting rods, some fretting of threads in the connecting rod boxes, two broken capscrews in one of the turbochargers with associated damage to the diffuser ring, one broken capscrew on the other turbocharger and linear indications on the valve seats in two cylinder heads. The meeting was concluded and the NRC/consultant group then went to the diesel generator disassembly area to observe the components and inspections.

While in the disassembly area on June 4 and 5, 1984, the problems noted above were given special attention. Some indications in the cylinder liners were detected by visual observation. MP&L was asked to inspect these by dye penetrant. The inspections were performed and the tests were negative (no thru wall or deep cracks). MP&L was also requested to determine the wall cylinder fire deck head flatness for future reference, to provide inspection and engine logs for review, to follow TDI methods to repair the serrated teeth and to look closely at the gear faces to determine if any pitting was occurring which would indicate a vibration problem. The NRC/consultant group reviewed draft inspection reports which had been prepared by MP&L and asked MP&L personnel questions in regard to them.

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At 1:00 p.m. on June 5, 1984, a public meeting was held in the Emergency Response Center to wrap-up the site visit. E. Murphy (NRC) was the spokesman for the diesel engine review group and summarized their position as follows:

- (1) Teardown inspections performed as required by the Order and the results obtained provide confidence in the TDI diesel engines for the first cycle of operation. The TDI Owners Group program will resolve the issue for long term.
- (2) On the basis of the broken capscrews in the turbocharger, the staff concurs with MP&L's plans to inspect the turbochargers on the Division II TDI engine. MP&L should continue to work with the manufacturer to overcome this problem for the long range.
- (3) In regard to the connecting rods, the inspection performed is satisfactory to support the first cycle of operation. MP&L should follow the TDI procedures for repair of mating surfaces (serrated teeth) and should perform a measurement of link pin dowel interference.
- (4) In regard to connecting rod bolts, MP&L should verify the proper preload by ultrasonic techniques. The NRC recommended the use of new bolts instead of reusing old ones and the use of an improved lubricant instead of the oil and graphite mixture.
- (5) In regard to some gear pitting, there was no short term concern. MP&L should continue to work with the TDI Owners Group to resolve this issue for long term.
- (6) In regard to cylinder heads, MP&L should make measurements in the fire deck area to determine warp and should continue to monitor this area for long term performance.
- (7) Also in regard to cylinder heads, the indications on the stellite seats should pose no problem for the first cycle of operation. MP&L should continue to work with the TDI Owners Group to resolve this issue for long term.

The meeting was concluded with a request that MP&L formally submit the finalized inspection reports for our review.

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M. D. Houston, Project Manager  
Licensing Branch No. 4  
Division of Licensing

Enclosures:  
As stated

*MDH*  
DL:LB #4  
DHouston/ah  
10/25/84

*EM*  
EMurphy  
10/5/84

*EA*  
DL:LB #4  
EAdensam  
10/6/84

DESIGNATED ORIGINAL  
Certified By *Angela Hutton*

\*  
MEETING ATTENDEES  
June 4, 1984

NRC

T. Michaels  
E. Murphy  
D. Persinko  
T. Conlon (RII)  
D. Houston

DOE

K. Trickett

MP&L

T. Cloninger  
D. Hardesty  
S. Lewis  
B. Angle

JULEP

K. Lawrence  
D. Wallace

NRC Consultants

D. Dingee (PNL)  
A. Henriksen  
J. Horner  
P. Louzecky

MEETING ATTENDEES  
June 5, 1984

NRC

T. Michaels  
E. Murphy  
D. Persinko  
T. Conlon (RII)  
A. Wagner (SRI)  
D. Houston

NRC Consultants

D. Dingee (PNL)  
A. Henriksen  
J. Horner  
P. Louzecky

DOE

K. Trickett

JULEP

K. Lawrence  
D. Wallace  
M. Wallace

MP&L

J. Richard (Sr. VP)  
B. Angle  
J. Moore  
D. Hardesty  
R. Lewis  
F. Grogan  
M. Allen  
R. Hutchinson  
F. Wall  
S. Feith  
S. Tanner  
R. Courtney  
R. Pogue  
T. Cloninger

MP&L Consultants

H. Falter  
R. Baker  
J. Brihmadessam

DIVISION I TDI D/G INSPECTION STATUS

COMPONENT	TEST/INSPECTION	STATUS	PRELIM * RESULTS	NOTES
1. AIR START VALVES CAPSCREWS	VISUAL	COMPLETE	ACC	
	TORQUE CHECK	COMPLETE	ACC	
	DIMENSIONAL	COMPLETE	MNCR 474-84	LENGTH (2)
2. PUSH RODS (INTAKE/EXHAUST CONNECTOR)	VISUAL	COMPLETE	ACC	
	LIQUID PENETRANT	COMPLETE	MNCR 470-84	INDICATIONS (3)
3. ROCKER ARM CAPSCREWS	TORQUE CHECK	COMPLETE	ACC	
	MAT'L COMPARATOR HARDNESS			
	MAGNETIC PARTICLE	COMPLETE	ACC	
4. HEADS				
A. FIRE DECK	MAGNETIC PARTICLE	COMPLETE	ACC	
	ULTRASONIC	COMPLETE	ACC	
B. VLV SEATS	VISUAL	COMPLETE	MNCR 481-84	
	LIQUID PENETRANT	COMPLETE	MNCR 481-84	
C. FUEL NOZZLE CAVITY	ULTRASONIC	COMPLETE	REVIEWING	

\* MNCR'S UNDER ENGINEERING EVALUATION.

ENCLOSURE

DIVISION I TDI D/G INSPECTION STATUS

COMPONENT	TEST/INSPECTION	STATUS	PRELIM * RESULTS	NOTES
D. VALVES	VISUAL	COMPLETE	MNCR 472-84 MNCR 473-84 MNCR 475-84	CHROME CHIPPING
	LIQUID PENETRANT	COMPLETE	ACC	
E. SPRINGS	VISUAL	COMPLETE	MNCR 466-84	COLOR CODE ..
F. VLV GUIDE BORE	VISUAL	COMPLETE	ACC	
5. CONN ROD BEARING SHELL	VISUAL	COMPLETE	REVIEWING	
	LIQUID PENETRANT	COMPLETE		
	RADIOGRAPH	IN PROGRESS		
	DIMENSIONAL CHKS			
6. PISTONS				
A. CROWN-FIRE DECK & STUD BASE AREA	MAGNETIC PARTICLE	COMPLETE	ACC	

\* MNCR'S UNDER ENGINEERING EVALUATION.

DIVISION I TDI D/G INSPECTION STATUS

COMPONENT	TEST/INSPECTION	STATUS	PRELIM * RESULTS	NOTES
B. PISTON PIN	VISUAL MATERIAL COMPARATOR HARDNESS	COMPLETE	ACC	
C. SKIRT BOLT FLATS	MAGNETIC PARTICLE	COMPLETE	ACC	
D. CROWN STUDS	VISUAL	COMPLETE	ACC	
	MAGNETIC PARTICLE	COMPLETE	ACC	
	TORQUE CHECK	COMPLETE	ACC	
E. KINGS	DIMENSIONAL CHKS	COMPLETE	ACC	
7. CONN RODS				
A. MACHINED BOX THREADS	MAGNETIC PARTICLE	COMPLETE	UNDER EVAL	
	LIQUID PENETRANT	COMPLETE	UNDER EVAL	
	VISUAL	COMPLETE	ACC	
B. ROD BOLTS	VISUAL	COMPLETE	MNCR 482-84	
	MAGNETIC PARTICLE	COMPLETE	MNCR 489-84	
	TORQUE CHECK	COMPLETE	ACC	

\* MNCR'S UNDER ENGINEERING EVALUATION.

DIVISION I TDI D/G INSPECTION STATUS

COMPONENT	TEST/INSPECTION	STATUS	PRELIM * RESULTS	NOTES
C. PISTON PIN BUSHINGS	LIQUID PENETRANT	COMPLETE	ACC	
D. RACK TEETH	VISUAL	COMPLETE	MNCR 480-54	
E. ROD TO BOX BOLTS	VISUAL	COMPLETE	MNCR 489-84	
F. RODS	ROD BOW	COMPLETE	REVIEW	
G. LINK PIN CAPSCREWS	TORQUE CHECK	COMPLETE	REVIEW	
8. LINERS	VISUAL MATERIAL COMPARATOR HARDNESS DIMENSIONAL CHKS	COMPLETE   PARTIAL	REVIEW	
9. BLOCK				
A. INTERNAL BLOCK BORE	VISUAL DIMENSIONAL CHKS	COMPLETE IN PROGRESS	ACC	

\* MNCR'S UNDER ENGINEERING EVALUATION.



DIVISION I TDI D/G INSPECTION STATUS

COMPONENT	TEST/INSPECTION	STATUS	PRELIM * RESULTS	NOTES	
B.	HEAD SEATING SURFACE & LINER LANDING AREA	LIQUID PENETRANT DIMENSIONAL CHK	COMPLETE COMPLETE	ACC MNCR 490-84	UNDER EVAL
10.	HEAD STUDS	VISUAL MAT'L COMPARATOR HARDNESS TORQUE CHECK	COMPLETE COMPLETE	MNCR 471-84 ACC	UNDER EVAL
11.	MAIN BEARINGS (3)				
A.	SADDLE MATING SURFACE	MATERIAL COMPARATOR HARDNESS LIQUID PENETRANT	COMPLETE	ACC	
B.	STUDS & NUTS	MATERIAL COMPARATOR HARDNESS			

\* MNCR'S UNDER ENGINEERING EVALUATION.

DIVISION I TDI D/G INSPECTION STATUS

COMPONENT	TEST/INSPECTION	STATUS	PRELIM * RESULTS	NOTES
12. TURBOCHARGER				
A. WELDS	VISUAL	ASSEMBLY		
B. CAPSCREW	VISUAL MATERIAL COMPARATOR HARDNESS			
13. FUEL INJECTION TUBES	VISUAL	ASSEMBLY		
14. CRANKCASE CVRS	VISUAL	ASSEMBLY		
15. SUBCOVER CAPSCREWS	TORQUE CHECK	COMPLETE	ACC	

\* MNCR'S UNDER ENGINEERING EVALUATION.

MEETING SUMMARY DISTRIBUTION

Docket No(s): 50-416

NRC PDR

Local PDR

NSIC

PRC System

LB #4 r/f

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bcc: Applicant & Service List