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August 1, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Ms. E.G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

Dear Mr. Denton:

This letter is in reponse to several TDI emergency diesel engine issues raised by NRC and Battelle personnel during a visit to the Catawba Nuclear Station on July 26, 1984. The attachment contains responses promised by August 1, 1984 and commitment dates for responses to the remaining items.

Please call me if I can be of further service.

Very truly yours,

H.B. Tucker 1/80

Hal B. Tucker, Vice President
Nuclear Production

HBT:JG:rmm

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
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cc: NRC Resident Inspector
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Attachment 1
August 1, 1984

RESPONSES TO NRC QUESTIONS AND RECOMMENDATIONS AT JULY 26, 1984 MEETING AT CATAWBA NUCLEAR STATION CONCERNING DIESEL ENGINES

1. JACKET WATER SYSTEM DEPOSITS

Item: Battelle expressed concern regarding the deposits noted in the 1B diesel jacket water system in areas exposed by removal of cylinder liners. Duke Power agreed to review this concern and advise NRC of the action planned in regard to these deposits.

Discussion: Duke Power has reviewed the deposits in the jacket water system. We conclude that the type and amount of deposits in the system are normal and are not a cause for concern. Most of the deposits are covered with the same gray film that covers the surfaces of the system, which indicates that the deposits are not fresh. The amount of the deposits is small such that there appears to be no danger of the deposits interfering with proper cooling water flow or leading to cylinder liner sealing difficulties.

Jacket water system parameters have not shown any evidence of flow resistance increase, nor have engine temperatures. This supports our conclusion that the deposits are not a cause for concern.

We have also discussed this situation with TDI (Mr. M. Lowrey). TDI indicates that the deposits in the 1B diesel are normal and not a cause for concern. The deposits are believed to be due to original manufacture and not due to operation. TDI noted that quantity of deposits in the 1B diesel is less than normally observed.

Response: We will remove the deposits exposed by removal of the four cylinder liners that are now out of the 1B engine. We will also clean out deposits exposed by removal of any additional cylinder liners that are removed for other reasons. However, removal of cylinder liners specifically for the purpose of cleaning the jacket water system is not planned.

2. LUBE OIL SELECTION

Item: Battelle pointed out that improved grades of lubricating oil are available and are now recommended by TDI; Battelle recommended that one of these improved oils be used.

Response: We will use one of the improved grades of lubricating oil per TDI's latest lube oil recommendations. The specific grade we will use is Mobilgard 412.

3. EXHAUST GAS TEMPERATURES

Item: Battelle recommended that one thermocouple be installed per turbocharger on each diesel to permit routine monitoring of exhaust gas temperatures at the location where the exhaust gas manifolds attach to the turbochargers. This should utilize a permanently installed system. In addition, Battelle wants to obtain, in the near future, exhaust gas temperature measurements at 25, 50, 75 and 100% of full power.

Response: Duke Power will measure exhaust gas temperatures at 25, 50, 75 and 100% power during return to service testing of the 1B diesel. This will be performed using temporary equipment which will be removed following completion of these tests. In addition, permanently installed equipment to measure exhaust gas temperatures at the turbocharger inlets will be installed at the first refueling.

4. LINK ROD BUSHINGS

Item: NRC consultants recommended that all 1B diesel link rod bushings be removed and examined to ensure that excessive scoring or other damage has not occurred.

Response: Duke Power will disassemble all 1B diesel link rod to master rod connections and inspect the link rod bushings.

5. CONNECTING ROD BEARINGS

Item: The NRC requested that the 1A DIESEL bearing shells that were replaced be identified.

Response: The upper and lower shells (6 total) were replaced on connecting rod bearings 5, 6, and 7. It should be noted that one of the 6 shells had not been rejected by RT, but was replaced as part of a set.

6. WRIST PIN BUSHINGS

Item: Battelle asked to be advised as to which specific bushings on diesel 1A had been found to be slightly oversize.

Response: Detailed review of the piston pin bushing to piston pin clearances has shown that all of the clearances meet the TDI technical manual limit of 0.015 inches for new parts, and have substantial margins to the clearance of 0.020 inches allowed for used parts in the engine. Four piston pin bushings were inspected, with the following results:

Cylinder No.	Piston Pin Bushing I.D., Inches	Piston Pin O.D., Inches	Measured Clearance Inches
1L	6.7618	6.7490	0.013
5R	6.7610	6.7498	0.011
8L	6.7611	6.7492	0.012
8R	6.7607	6.7491	0.012

In summary, the statement in Appendix A of our June 29, 1984 report for Part No. 02-340A that three piston pin bushings exceeded new part tolerances by 0.002 inches (but met TDI recommended wear allowances) was not completely correct. In fact, all of the four bushings which were inspected meet both new and used part tolerances.

7. LINK ROD BOLTS

Item: Battelle recommended that these bolts be retorqued on diesel 1B.

Response: These bolts will be retorqued. This will be done as part of reassembly following the link rod bushing inspections discussed in Section 5 above.

8. LOAD PICKUP

Item: NRC requested that they be provided with graphs showing the time history of load pickup by the diesel generators.

Response: Time history load profiles were provided to NRC in the handouts for the Duke/NRC meeting on March 21, 1984. We understand from recent telephone discussions with NRC (M. Miller) that further information is not required at this time.

NOTES

As agreed during the July 26, 1984 meeting, the following responses are scheduled for later transmittal to NRC :

	Subject	Due Date
9.	REPLACEMENT OF TURBOCHARGER BEARINGS (Notification that task has been completed)	October 31, 1984
10.	REVISION TO LUBE OIL TEMPERATURE AND PRESSURE OPERATING VALUES	August 19, 1984
11.	IDENTIFICATION OF SERIES (TYPE) OF CYLINDER HEADS USED	August 8, 1984