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December 19, 1984
RBG- 19736
File Nos. G9.5, G9.25.1.1

Mr. Robert D. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV, Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Martin:

River Bend Station Unit 1
Docket No. 50-458
Final Report/DR-220

On November 19, 1984, GSU notified Region IV by telephone that it had determined DR-220 to be reportable under 10CFR50.55(e). This deficiency concerns the valve seats on the cylinder heads, of the standby diesel generators supplied by Transamerica Delaval, Incorporated. The attachment to this letter is GSU's final 30-day written report pursuant to 10CFR50.55(e)(3) with regard to this deficiency.

Sincerely,

William J. Cahoff

for J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/PJD/lp

Attachment

cc: Director of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC Resident Inspector-Site

INPO

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ATTACHMENT

December 19, 1984
RBG- 19736

DR-220/Valve Seats on the Cylinder
Heads of the Standby Diesel Generators
Supplied by Transamerica Delaval, Incorporated

Background and Description of the Problem

This deficiency concerns cracks and multiple pits on the valve seats in the cylinder heads of engine cylinders of the standby diesel generators. These deficiencies are outlined in Report of a Problem (ROAP) No. RB1-E098 and Nonconformance and Disposition Report (N&D) No. 6428 for diesel generator 1EGS*EG1A and N&D No. 6659 for diesel generator 1EGS*EG1B.

The valve seats in question are an integral part of the cylinder head and are formed by fusing and welding of metal around the desired bore on the head and then machining to the preestablished finish and dimensions.

During inspections of these valve seats, in accordance with the recommendations of the Transamerica DeLaval, Inc. (TDI), Owner's Group, linear cracks and deep pitting were discovered on the machined sealing surfaces of the valve seats for both intake and exhaust valves of both diesel generator sets. A total of five valve seats show a combination of these problems, as described in the referenced N&Ds.

At the time of discovery of these problems, engine 1EGS*EG1A had accumulated only 50 hours of operation. The observed cracking and pitting is not believed to be caused by engine operation. It is assumed that these problems were present before the engine was tested at the TDI shop. Based on an evaluation by our Architect-Engineer, the causes of the defects were inadequate control of the stellite valve seat weld deposition process and inadequate shop inspection.

As explained in the above reference, the TDI Diesel Generator Owner's Group has investigated the design and manufacture of TDI cylinder heads. TDI cylinder heads cast before September 1980 were subject to inadequate control of the stellite valve seat weld deposition process.

Safety Implication

The effects of the observed problems could be as follows:

1. A gradual degradation of valve seating, thereby failing to produce a positive sealing, resulting in leakage of exhaust gases or combustion air during engine operation.

2. The potential for cracks to propagate due to flaws in valve seats, which may cause jacket water leakage into the cylinders.

Had the conditions remained uncorrected, the performance of the standby diesel generators to supply power to safety-related electrical equipment may have been reduced or degraded sometime during the life of the diesel and this could have adversely affected the safety of operations of the plant.

Corrective Action

The extent of the problem was limited to the components listed on ROAP No. RBI-E-098. All the cylinder heads that contained rejectable valve seat defects were replaced with complete, new assemblies.

The new cylinder heads were manufactured using improved processes; therefore, the potential for preexisting flaws is significantly less. The new cylinder heads were inspected at the TDI shop using a combination of UT, MT, and PT procedures developed by the TDI Owner's Group. These inspections were witnessed by SWEC Quality Control (QC) inspectors.