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MURRAY R. EDELMAN
VICE PRESIDENT
NUCLEAR

April 17, 1984

Mr. James G. Keppler
Regional Administrator, Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

RE: Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
Final Report on Lubricating Oil
System Defect in Standby Diesel
Generators [RDC 24(81)]

Dear Mr. Keppler:

This letter serves as the revised final report required by 10CFR50.55(e) concerning the potential lubricating oil system defect on standby diesel generators, model DSRV16, supplied by Transamerica Delaval. This was first reported to Dr. R. B. Landsman of your office on December 30, 1980, by Mr. W. J. Kacer of The Cleveland Electric Illuminating Company (CEI). A report on this subject was filed on April 15, 1982, and subsequent letters dated July 1, 1983; December 15, 1983; March 6, 1984; and March 30, 1984, also concerned this deficiency.

This report contains a description of the deficiency, an analysis of the safety implication, and the corrective action taken.

Description of Deficiency

Transamerica Delaval is supplying four (4) diesel generator units (Model DSRV16) for the Perry Nuclear Power Plant (PNPP) that will be used as a standby power source for the PNPP. On December 16, 1980, Transamerica Delaval notified the Nuclear Regulatory Commission under 10CFR21 that a potential defect had been identified concerning lubrication of the thrust bearings of the turbochargers. This notification was transmitted to CEI by their letter dated December 22, 1980.

The reported defect exists in the lubricating oil system that supplies oil to the turbocharger bearings. The design of the system permits lubricating oil to flow to the bearings only when the engine is running and prevents oil flow to the bearings when the engine is in the standby mode. The oil seal of the turbocharger is a labyrinth type and is only effective when the turbocharger is running. Because of the possibility of seal leakage when the turbocharger is not running (engine standby mode), the turbocharger lubricating oil system is bypassed at this time. The turbocharger thrust bearings may experience rapid wear because of this lubricating system which may result in engine non-availability.

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The initial Delaval redesign incorporated a prelubrication system which dripped lube oil on the turbo thrust bearing. This system extended the thrust bearing life but failures were recorded after approximately one hundred (100) starts.

Analysis of the Safety Implications

Excessive thrust bearing wear, due to inadequate lubrication, could affect engine availability and thus affect the availability of standby AC power supply.

Corrective Action

The turbocharger lube oil system will be modified so that the turbocharger thrust bearings receive adequate oil during prelubrication. This modification will also insure that the turbocharger is not overlubricated.

As required by their 10CFR21 Notification dated February 15, 1984, Transamerica Delaval has provided a revision to the turbocharger thrust bearing prelubrication system. The Perry diesels will incorporate the addition of an orifice bypass valve. This will allow a drip lubrication of the turbocharger thrust bearing during the normal engine keepwarm/prelube cycle. During engine starts, for normal exercise testing, a manual valve shall be opened to allow a full flow of prelube oil to the thrust bearing for two minutes prior to engine start. The valve shall be manually closed upon the engine reading rated speed (450 RPM).

In the event of an emergency start, the thrust bearing will have the drip sytem prelubrication providing lubrication until the normal engine lube oil pressure has reached operating pressure.

We anticipate completion of this modification by July 1, 1984, for Unit 1 and prior to pre-engine start testing for Unit 2.

Sincerely,

Murray R Edelman

Murray R. Edelman
Vice President
Nuclear Group

MRE:pab

cc: Mr. M. L. Gildner
NRC Site Office

Director
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