

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

January 12, 1984

Director of Nuclear Reactor Regulation  
Attention: Ms. E. Adensam, Chief  
Licensing Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of the Application of ) Docket Nos. 50-390  
Tennessee Valley Authority ) 50-391

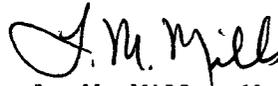
On December 2, 1983, TVA received an informal NRC question concerning diesel engines at Watts Bar Nuclear Plant. TVA was requested to either provide prelubrication of the upper portions of the diesels or justification for not providing intermittent prelubrication.

TVA's position that such prelubrication is not needed is supported by the engine manufacturer. The requested justification is enclosed.

If you have any questions concerning this matter, please get in touch with D. P. Ormsby at FTS 858-2682.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager  
Nuclear Licensing

Sworn to and subscribed before me  
this 12<sup>th</sup> day of January 1984

Paulette H. White  
Notary Public  
My Commission Expires 9-5-84

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)  
Region II  
Attn: Mr. James P. O'Reilly, Regional Administrator  
101 Marietta Street, Suite 2900  
Atlanta, Georgia 30303

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WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
Justification for Not Providing Intermittent Prelubrication  
of Upper Portions of Diesel Engines

NRC Concern

In letters dated October 9, 1981, and December 14, 1982, the applicant proposed using the manufacturer's modification to alleviate the Staff concern on dry diesel engine starting. The staff has reviewed the manufacturer's modification, EMD MI 9644, in the SER and determined that the modification would provide continuous prelubrication to the lower portions of the engine, but not the upper portions, i.e., rocker arms, camshaft, and associated wearing parts prior to an emergency diesel engine start. The Staff informed the applicant that adequate justification for the nonautomatic prelubrication of the upper rocker arm assembly wearing parts be provided or prelubrication be provided on a continuous or intermittent basis. The applicant in his letter of December 14, 1982, provided acceptable justification for not prelubricating the upper portions of the engine on a continuous basis. However, the staff's concern of dry starting has not been alleviated, thus a justification for not prelubricating on an intermittent (automatic or manual) basis needs to be provided. Other plants with similar engines (e.g., LaSalle) have provided acceptable justifications from the manufacturer for not prelubricating the upper portions of the engine on a continuous or intermittent basis. We require that similar manufacturer justification be provided for not prelubricating the upper portions of the engine on an intermittent basis for your engines or prelubrication be provided on a periodic basis not to exceed a frequency of once a week.

TVA Response

The upper portions of the engine, i.e., rocker arms, camshaft, and associated wearing parts, need not be prelubricated for the following reasons:

1. The bearings at the camshaft and rocker arms are lightly loaded during startup, they are not subjected to marginal conditions that require prelubrication, and will not experience damage or distress even if they are not lubricated during startup.
2. The unfilled portions (volume) of the camshaft and upper rocker arm assembly lube oil system, after implementation of MI 9644, is small (1/2 to 1 gallon depending on engine size) compared to the total volume of the engine lube system. Because of the small volume involved, this portion of the system is rapidly filled during the first few revolutions of the engine by the engine-driven lube oil pump. The pump delivers 1/10 to 1/4 gallon per engine revolution depending on the engine size.

3. Lube oil system operating pressure is rapidly established following startup since the majority of the oil system is fully charged, i.e., the engines with modification MI 9644 are fully lubricated during the first four or five revolutions (depending on engine size) at startup.

Based on this information, TVA finds the implementation of EMD MI 8644 will alleviate the concern of dry engine starting. This has been verified by the diesel engine manufacturer. This modification will be completed before fuel loading of unit 1 thereby alleviating the need for any prelubrication of the upper portions of the engines.