

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

October 19, 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

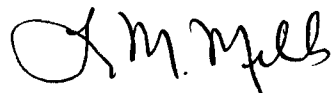
By letter dated March 6, 1984 from T. M. Novak to H. G. Parris, TVA was notified of the NRC's intent to condition the WBN license to require a temperature monitor in a DG room which would annunciate if the DG room temperature fell below 65°F. TVA would also be required to take action to restore the room to 65°F or higher within 72 hours or begin shutdown procedures.

Enclosed is information concerning TVA action to ensure operability of the diesel generators by maintaining a minimum room temperature. TVA expects that with implementation of this action this issue will be resolved.

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 19th day of Oct, 1984

Bryant M. Lowery
Notary Public
My Commission Expires 4/8/86

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Mr. James P. O'Reilly Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
DIESEL GENERATOR ROOM TEMPERATURE

By letter dated March 6, 1984 from T. M. Novak to H. G. Parris, TVA was notified of action needed to resolve NRC concerns related to the Watts Bar Nuclear Plant diesel engine cooling water keep warm system. This action included installation of an alarm in the diesel generator (DG) room set to annunciate in the main control room when the room temperature drops below 65°. In conjunction with this, TVA would be required to take the appropriate action to restore the temperature to 65°F or above within 72 hours or begin shutdown procedures.

In lieu of a remote temperature monitoring program, TVA will utilize Surveillance Instruction (SI) 7.46 to provide notification to operations personnel of DG room temperature. The existing SI requirement of monitoring the DG room temperature once per shift will be expanded to specify additional evaluation and action to reestablish a minimum DG room temperature if the recorded temperature is below that set minimum. The alternative of using periodic surveillance as opposed to remote monitoring was proposed on Sequoyah Nuclear Plant by my letter to you dated November 10, 1981 (see attachment A) and was approved by letter dated February 4, 1982 from R. L. Tedesco to H. G. Parris (see attachment B). Use of the SI for Watts Bar should, therefore, resolve the NRC concerns related to indication of DG room temperature. With respect to the specific minimum DG room temperature to be used for initiation of TVA action, we offer the following.

Included with the March 6, 1984 letter was a letter dated December 9, 1981 from M. J. Fleckenstein to R. J. Giardina which provided the NRC with information related to the DG standby immersion heater system. The March 6, 1984 letter stated that the information provided by the Electro-Motive Division (EMD) of General Motors Corporation (December 9, 1981 letter), "...has shown that satisfactory performance of the cooling water preheat system is based on maintaining a diesel engine temperature of 65°F or higher." TVA has reviewed the EMD information and does not agree that this is a valid assumption.

The EMD test was originally intended to show that the engine water would not be overheated by the immersion heater. Therefore, the ambient temperature at which the test was conducted was either arbitrary or conservatively set such that it would not offset the actual effects of the immersion heater. In either case, it should not be considered to be the lowest ambient temperature for which DG reliability can be assured; only that 65°F is an acceptable ambient temperature. The test does, however, verify that the remote areas of the DG (i.e., cylinder heads) were maintained at a temperature of 20°F over the ambient temperature, by the stand by immersion heater system. As specified by the EMD report, this was due to the fact that "...the cylinders are heated by warm water traveling down the water manifold and rising to displace the cold water." "The cold water must also return through the manifold since the normal (shutdown) water level is below the water outlet pipe." This is apparent from curve 3 of the subject report which shows that during the period between 16 and 24 hours, after equilibrium conditions had been reached, an increase in ambient temperature resulted in a corresponding increase in average cylinder temperature. Since this correlation is valid for the temperature range of interest, (40°F to 65°F) a DG room temperature of 40°F would result in a cylinder head temperature of no less than 60°F. This temperature, which is indicative of the lowest temperature of the critical DG components, is sufficient to assure reliable DG start.

Additional evidence of reliable DG start at temperatures below 65°F is provided by the cold start tests performed by Power Systems Division of Morrison-Knudsen Company. Attached is a data sheet showing the ambient temperatures for each of the 300 cold start tests and specific information on test No. 21 with details of the test procedure (see attachment C and D).

TVA believes that in conjunction with the above specified information, the fact that there is no historical evidence of a failure at DG start due to low ambient temperature, provides assurance of reliable DG start if the room temperature is maintained at 40°F or higher.

To summarize, TVA will revise SI 7.46 to require that the temperature of the DG rooms be monitored once each shift. TVA proposes that table 3.7-4, "Area Temperature Monitoring" of the WBN Technical Specifications, be revised to include the following:

- | | |
|--|-------|
| 22. D/G Bldg. el. 742, 1A-A - D/G room near D/G set. | ≧40°F |
| 23. D/G Bldg. el. 742, 2A-A - D/G room near D/G set. | ≧40°F |
| 24. D/G Bldg. el. 742, 1B-B - D/G room near D/G set. | ≧40°F |
| 25. D/G Bldg. el. 742, 2B-B - D/G room near D/G set. | ≧40°F |

In the event that the temperature falls below 40°F, action will be taken per the action statement for specification 3.7.13. SI 7.46 will also provide specific guidelines for remedial action.