

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

April 5, 1985

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

During a telephone conference call held between TVA and NRC representatives on March 29, 1985, the Staff requested TVA to determine the minimum subatmospheric pressure inside the containment following a degraded core event with hydrogen combustion at Watts Bar Nuclear Plant (WBN).

In order to resolve NRC's concern on WBN containment integrity, OE has performed additional calculations with no operator action assumed. The results are as follows:

The minimum subatmospheric pressure conservatively calculated to occur after a degraded core event with 75-percent zirconium/water, hydrogen production reaction, is 3 lb/in<sup>2</sup>. An additional calculation using more realistic initial conditions yielded a subatmospheric pressure of .75 lb/in<sup>2</sup>. The final containment temperature in both calculations were conservatively assumed to be 60°F. By performing a calculation using a more realistic final containment temperature of 100°F as would exist after approximately seven days of cooldown (reference Electrical Equipment Environmental Qualification Report, Figures 3.0-2 and -3), the results yielded a positive pressure of .98 lb/in<sup>2</sup>. Although subatmospheric pressures due to hydrogen combustion are not expected to occur inside containment, the structural capability of the WBN containment and penetrations was reviewed. It has been determined that a pressure reduction of 4 lb/in<sup>2</sup> below atmospheric pressure will not affect containment integrity. Therefore, postulating subatmospheric pressures resulting from hydrogen combustion does not constitute a safety hazard for WBN.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*R. H. Shell*

R. H. Shell  
Nuclear Engineer

Sworn to and subscribed before me  
this 5<sup>th</sup> day of April 1985.

*Paulette S. White*  
Notary Public

My Commission Expires 8-24-88

cc: U.S. Nuclear Regulatory Commission  
Region II  
Attn: Dr. J. Nelson Grace, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323