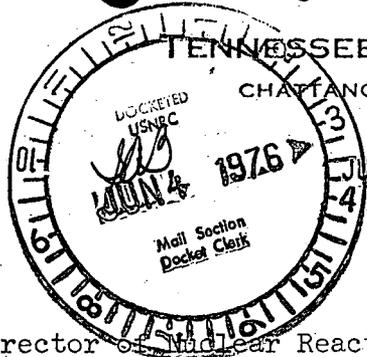




830 Power Building

Regulatory

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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401



Director of Nuclear Reactor Regulation  
Attention: Mr. Karl Kniel, Chief  
Branch No. 2-2  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Kniel:

In the Matter of the Application of ) Docket Nos. 50-327  
Tennessee Valley Authority ) 50-328  
50-390  
50-391

Enclosed for your review is the scoping document for an RHR sump vortex test. The description of the physical arrangements, procedures, and instrumentation is submitted as promised by the enclosure of TVA's April 9, 1976, letter.

TVA would like to meet with the NRC staff to discuss the proposed test at your earliest convenience.

Very truly yours,

J. E. Gilleland  
Assistant Manager of Power

Enclosure

CC: Mr. M. A. Siano, Project Manager (Enclosure)  
TVA Projects  
PWR Systems Division  
Westinghouse Electric Corporation  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230

5616

## 1.0 REFERENCES

- 1.1 NRC Regulatory Guide 1.79.
- 1.2 Construction Sketch No. VT-1.

## 2.0 PREREQUISITES

- 2.1 Construction of a full-scale model of the RHR sump, its cover plate, 90° arc of surrounding cavity walls, and two 18-inch lines in the chemical holdup ponds at Watts Bar Nuclear Plant.
- 2.2 Acquisition of pumps capable of pumping design flow (19,500 gal/min).
- 2.3 Installation of flow measuring apparatus and other necessary instrumentation.

## 3.0 PRECAUTIONS

- 3.1 Should a vortex be observed, the pumps should be stopped to prevent damage to the pumps.

## 4.0 SPECIAL TEST EQUIPMENT

- 4.1 Flat plate orifice with  $\Delta P$  instrument in pump discharge line.
- 4.2 Camera to photograph any possible vortex formation (time lapse photography).

## 5.0 SCOPE

- 5.1 Measure and set the flow at the design value (19,500 gal/min).
- 5.2 With a water depth of 8 feet over the top of the sump, verify that there will be no vortex formation in the simulated RHR sump. (An experienced observer is necessary as there will be some surface movement due to the high flow rate.)
- 5.3 Repeat 5.1 through 5.2 with a simulated partially blocked intake screen and also at half design flow.

## 6.0 ACCEPTANCE CRITERIA

- 6.1 At rated flow (19,500 gal/min) and at half flow, no vortices shall be observed above the sump at the minimum operating depth of 8 feet.