830 Power Building
TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

August 11, 1976

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief
Branch No. 4
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Vassallo:

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

In a letter to Karl Kniel from J. E. Gilleland dated June 1, 1976, TVA submitted for review a proposed sump vortex test utilizing a physical model of the Sequoyah and Watts Bar sump. The test physical arrangements and test site have been changed.

Enclosed for your review is the revised scoping document for an RHR sump vortex test. The proposed test is to be conducted at TVA's Norris Engineering Laboratories using a scale model of the RHR sump and reactor cavity equipment located near the sump. After the test, the test description and results will be documented in the FSAR.

TVA awaits your review to complete the test plans and schedule.

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

TENNESSEE VALLEY AUTHORITY

SEQUOYAH AND WATTS BAR NUCLEAR PLANTS

SCOPING DOCUMENT FOR RHR SUMP VORTEX TEST

TITLE: SPECIAL RHR SUMP VORTEX TEST

REVISION: 1

PREPARED BY: Eric J. Arnold — 7/9/76 (date)

SUBMITTED BY: H R Corlett — 7/9/76 (date)

APPROVED BY: Daniel K. Patterson — 7-9-76 (date)
EN DES Branch Chief

1.0 REFERENCES

1.1 NRC Regulatory Guide 1.79

1.2 Drawings showing equipment located on lower floor of reactor containment.

2.0 PREREQUISITES

2.1 Construction of a 1:6 scale model of the RHR sump, its cover plate, surrounding cavity walls, all major equipment between the crane wall and reactor cavity wall that is located eight feet above the sump.

2.2 Installation of a pumping system to pump the scaled model flow for a design flow of 19,500 gpm.

2.3 Installation of pressure drop and flow measuring apparatus and other necessary instrumentation.

3.0 SPECIAL TEST EQUIPMENT

3.1 Flow measuring devise with $\triangle$P instrument in pump discharge line.

3.2 Pressure measurements at the discharge from the sump and at the pump suction.

3.3 Camera to photograph water surface near the entrance to the sump. (Time lapse photography or video tape recording.)

3.4 Head water elevation measuring instruments.

4.0 SCOPE

4.1 Measure and set the model flow at the equivalent design flow of 19,500 gpm.

4.2 With a water depth of eight feet over the top of the sump. Verify that there will be no high-energy vortex with an air-drawing core forming in the simulated RHR sump.

4.3 Repeat 4.1 through 4.2 with a simulated partially blocked intake screen and also at half design flow.

4.4 Repeat 4.1 through 4.2 at various water depths from eight feet to top of sump.

5.0 ACCEPTANCE CRITERIA

5.1 At simulated flow of 19,500 gpm and at half flow, no high-energy vortex sufficiently developed either continuously or intermittently shall be observed above the sump at the minimum operating depth of eight feet above the sump.