TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

50-390

January 29, 1981

WBRD-50-390/81-11
WBRD-50-391/81-10

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - DEFICIENCIES IN PRESSURE TESTING - WBRD-50-390/81-11, WBRD-50-391/81-10 - FIRST INTERIM REPORT

The subject condition was initially reported to NRC-OIE Inspector F. S. Cantrell on December 30, 1980, in accordance with 10 CFR 50.55(e) as NCR WB-M-80-16. Enclosed is our first interim report. We expect to provide additional information by May 13, 1981.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

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Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
DEFICIENCIES IN PRESSURE TESTING
WBRD-50-390/81-11, WBRD-50-391/81-10
10 CFR 50.55(e)

FIRST INTERIM REPORT

Description of Condition

During a QA audit of the pressure testing program for safety-related piping, several deficiencies were identified. The audit consisted of a detailed review of all completed test documentation for pressure tests by both hydrostatic and pneumatic methods. The problems identified are as follows:

1. Identification of Test Boundaries

   It was almost impossible to determine the boundaries or if the complete system had been tested, without a large amount of man-hours expended to cross reference to accompanying drawings. The recently initiated procedure, WBNP-QCI 4.34 now requires marked flow diagram drawings for each system to identify the pressure test boundaries.

2. Calibrated Test Instruments

   The majority of the pressure test documentation did not record any temperature measuring device used, even though there is a requirement for minimum temperature and no more than 10° F difference between the temperature of the pressure membrane and the testing medium.

3. System Interface Test Pressure

   Some instances were found where design pressure changes with system interface were not tested to the correct pressure as required by Construction Specification G-29M, 3.M.9.1(c), Section 7, and Addendum 2. Discussion with some engineering employees revealed they were not aware of this requirement.

4. Components Limiting Test Pressure

   Instances were found where the computed test pressure used was less than the minimum required. This was most likely due to a limiting component in the system, but there was no comment in the "Remarks Section" of the documentation sheet to indicate why this pressure was used or reference to the deviation.

5. Components Excluded from Pressure Test

   Cases were found where components and portions of systems were purposely excluded from the pressure test. This is not discovered until the numerous tests are compared to the entire system flow diagrams. The documentation should state the approval for not testing.

6. Conflict and Change of Requirements

A few instances were found where test pressures for the same area conflicted with approved drawing. Also, new requirements were added after tests were conducted.

7. Modifications After Testing

Interviews with engineering employees revealed that several piping segments had been cut and moved to conform to pipe location verification or support installations. In addition, review of documentation shows valves have been installed by ECN's. Both examples were done after completion of the pressure tests.

The pressure tests for the following systems had one or more of the above deficiencies: main steam and steam generator blowdown, main and auxiliary feedwater, fuel oil, fire protection, control air, service air, demineralized water, CVCS, safety injection, ERCW, component cooling, containment spray, RHR, waste disposal, fuel pool cool-clean, and diesel starting air.

Corrective Action

All hydrostatic testing records generated prior to audit WB-M-80-16 will be reviewed by engineering and QA personnel. Those found inadequate will be evaluated and where necessary the hydrostatic testing will be redone.

TVA is initiating a Construction Test Manual containing a general hydrostatic testing procedure from which specific test procedures for each future hydrotest will be prepared. This Construction Test Manual was described in the letter from L. M. Mills to J. P. O'Reilly dated January 7, 1981. No hydrostatic testing will be performed on safety-related systems without a specific test procedure being prepared and reviewed in accordance with previous commitments to NRC.

We will complete the review of hydrostatic testing records and take appropriate corrective action prior to the cold hydrotest of the involved unit.