TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

August 2, 1983 83 AUG 11 A10:38

WBRD-50-390/83-13
WBRD-50-391/83-12

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - INABILITY OF ANNULUS VACUUM CONTROL IN EMERGENCY GAS TREATMENT SYSTEM TO MAINTAIN ANNULUS NEGATIVE PRESSURE - WBRD-50-390/83-13, WBRD-50-391/83-12- FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector P. Fredrickson on March 2, 1983 in accordance with 10 CFR 50.55(e) as NCR WBN NEB 8303. Our first interim report was submitted on March 29, 1983. Enclosed is our final report. TVA no longer considers the subject condition to be adverse to the safe operations of the plant. Therefore, we will amend our records to delete this nonconformance as a 10 CFR 50.55(e) item.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc (Enclosure):
Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

OFFICIAL COPY
IE 27

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
INABILITY OF ANNULUS VACUUM CONTROL IN EMERGENCY
GAS TREATMENT SYSTEM TO MAINTAIN ANNULUS NEGATIVE PRESSURE
NCR WBN NEB 8303
WBRD-50-390/83-13, WBRD-50-391/83-12
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The annulus vacuum control subsystem of the emergency gas treatment system (EGTS) should maintain the annulus vacuum at a -5 inches of water gauge (w.g.) during normal plant operation. Presently, the system does not take into account the effects of EGTS air cleanup subsystem testing and an Auxiliary Building Isolation (ABI) signal. The effects of both conditions result in the inability of the annulus vacuum control subsystem to maintain annulus negative pressure at -5 inches w.g.

Safety Implications

The calculations which show design basis accident (DBA) offsite doses below the 10 CFR 100 limits are based on an initial annulus pressure of -5.0 inches w.g.

TVA performed analysis No. TI-RPS-120 to investigate the offsite doses as a result of the condition described above, and has concluded that the condition does not result in dose rates greater than the limits given in 10 CFR 100. The analysis conservatively assumed that for three minutes following a LOCA, containment leakage bypasses the annulus. After three minutes, the air cleanup subsystem of EGTS establishes the -0.5 inches w.g. design pressure for its accident mode of operation.

The annulus vacuum control subsystem of the EGTS has been shown to be a conservative plant design feature. Therefore, loss of the normal annulus vacuum of -5.0 inches e.g. during an ABI or during EGTS air cleanup subsystem testing is acceptable.

This condition exists only for the interim condition between unit 1 fuel loading and unit 2 fuel loading, since the interim auxiliary building isolation envelope necessitates isolation of the annulus vacuum control subsystem by interim isolation dampers. After unit 2 fuel loading, these isolation valves will be locked open and the annulus vacuum control subsystem will be capable of performing its designed function during all normal operating conditions including the effects of EGTS air cleanup subsystem testing and an ABI signal.

Therefore, there are no conditions adverse to the safe operation of the plant, and we no longer consider 10 CFR 50.55(e) applicable.