

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

September 9, 1985

WBRD-50-390/85-30
WBRD-50-391/85-29

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

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - ANNULUS SUMP DRAIN VALVE POSITION
DISCREPANCY - WBRD-50-390/85-30, WBRD-50-391/85-29 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Harry Krug on August 12, 1985 in accordance with 10 CFR 50.55(e) as
Significant Condition Report (SCR) WBN NEB 8513. Enclosed is our final report.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. W. Hufham
J. W. Hufham, Manager
Licensing and Risk Protection

Enclosure

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

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

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
ANNULUS SUMP DRAIN VALVE POSITION DISCREPANCY
WBRD-50-390/85-30, WBRD-50-391/85-29
SCR WBN NEB 8513
10 CFR 50.55(e)
FINAL REPORT

Description of Deficie. :

The 10-inch containment annulus sump drain valve (FCV-77-920) for Watts Bar Nuclear Plant (WBN) is designated on TVA drawing 47W852-1 as normally open. During the emergency gas treatment system (EGTS) preoperational test for WBN, the valve was in the closed position. Thus, it has not been demonstrated that the EGTS can perform its required safety functions if the valve is in the normally open position. Additionally, WBN System Operating Instruction (SOI) 77.1 was revised, revision 5 dated June 22, 1985, to show the subject valve in the normally closed position. This is contrary to the normally open position required by drawing 47W852-1.

TVA has determined the cause of this deficiency to be a failure by the original floor and equipment drains system designers to properly coordinate the affected sump drain drawings with the knowledgeable heating, ventilating, and air-conditioning (HVAC) engineers. The HVAC engineers would have recognized that a large leakage path into the annulus area existed if the subject valve was left open. SOI 77.1 was incorrectly revised because individuals in TVA's Office of Nuclear Power (NUC PR) who are responsible for preparation of SOIs on the drains system recognized during a walkdown that the open valve provided a flow path between the units 1 and 2 annulus areas and the auxiliary building. They revised SOI 77.1 in June 1985 to require that the valve be closed. They concurrently requested TVA's Office of Engineering (OE) to revise 47W852-1 to agree with the SOI. OE was in the process of evaluating that request at the time SCR WBN NEB 8513 was issued.

Safety Implications

Placing the subject valve in the normally closed position could create a flooding condition in the containment annulus in the event of a passive pipe failure(s) during a design basis event (DBE). Flooding the annulus could compromise the effectiveness of the air cleanup subsystem of the EGTS, as described in WBN PSAR Section 6.2.3.2.2 and could possibly result in offsite doses in excess of 10 CFR 100 limits. Flooding could also render some safety-related electrical components, which are located in the annulus and are not qualified for submergence, inoperable. This could adversely affect the safety of operations of the plant.

Corrective Action

TVA will install a loop seal in the 10-inch annulus sump drain line and will leave FCV-77-920 in the normally open position. The loop seal, with an adequate water head to assure that a water seal will remain in place for

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normal pressure differentials, will eliminate the air inleakage path through the annulus sump drain, and, at the same time, will allow continued functioning of the drain. This will also ensure the validity and acceptability of the EGTS preoperational test results for WBN. Revisions to drawing 47W852-1 and all necessary piping reanalysis will be accomplished under engineering change notices (ECNs) 5866 and 5867 for units 1 and 2, respectively. SOI 77.1 will be revised in concurrence with these ECNs to reflect the normally open position of FCV-77-920.

TVA has completed a review of this deficiency for Bellefonte Nuclear Plant (BLN). The review identified that the annulus sump drain line at BLN already has a loop seal installed and that there are no valves in the line. As such, this problem is not applicable to BLN.

OE revised all of its engineering procedures (OEPs) on June 28, 1985, in order to provide and facilitate more effective control and accountability over all aspects of OE design activities. OEP-10, "Review," section 3.2, requires that an interface review be performed on design input and design output documents and calculations (including vendor documentation) for the coordination and resolution of design interfaces. OEP-10, attachment 5, provides a checklist which must be completed for designs which undergo a design review and which addresses specific areas such as interface coordination. Formal training of OE personnel to the new OEPs has been completed. The individuals responsible for revising SOI 77.1 have been counseled to ensure that proper design change reviews and/or requirements have been accomplished per WBN Administrative Instructions before revising SOIs. These actions will prevent recurrence of this deficiency.

All corrective actions for this item will be completed by November 1, 1985, for unit 1, and by November 18, 1985, for unit 2.