

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

83 JUL 29 P 4: 07
July 27, 1983

WBRD-50-390/82-103
WBRD-50-391/82-97

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 - VENTING OF HIGH POINTS IN ERCW
SYSTEM - WBRD-50-390/82-103, WBRD-50-391/82-97 - FOURTH INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
C. Burger on September 30, 1982 in accordance with 10 CFR 50.55(e) as NCR
WBN MEB 8202. Interim reports were submitted on October 28, 1982 and
February 25 and April 28, 1983. Enclosed is our fourth interim report. We
expect to submit our next report on or about September 23, 1983.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

D S Kammer

for 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

8308180312 830727
PDR ADOCK 05000390
S PDR

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
VENTING OF HIGH POINTS IN ERCW SYSTEM
NCR WBN MEB 8202
WBRD-50-390/82-103, WBRD-50-391/82-97
10 CFR 50.55(e)
FOURTH INTERIM REPORT

Description of Deficiency

Air vents are provided at high points of piping systems to purge air trapped during initial filling, operation, or following maintenance functions. Manual vents are generally acceptable; however, TVA has determined that air may come out of solution due to heating in several safety-related coolers supplied with essential raw cooling water under accident conditions. Since access is restricted under such conditions, the manual vents would be unsuitable for these applications.

No analysis has been performed to identify the points in the system, if any, where automatic venting will be required. The cause of this deficiency is incomplete consideration of all design bases during the production of design criteria.

Interim Progress

The TVA Water Systems Development Branch (Norris Lab) is evaluating the significance and/or realization of air liberation as a problem in the system requiring vents. Their report with recommendations is expected to be submitted in July 1983. The TVA Mechanical Engineering Branch (MEB) is continuing its evaluation of potential use of air eductors to purge the system of liberated air in the event that the Norris Lab report does not allow resolution by analysis.

The WBN ERCW system was reviewed to determine the need for automatic high point vents due to potential of dissolved air liberation and entrapment in the ERCW system piping during operation under accident conditions. The results of this study indicate a high potential for air liberation in the higher elevation portions of the discharge lines of some of the components.

The component loops for which the air liberation has the greatest potential are the Emergency Gas Treatment Room (EGTR) coolers and the Upper Containment Vent (UCV) coolers. The static pressures predicted for the discharge piping higher elevations indicate both release of air from solution and incipient cavitation conditions near flow control valves and/or flow elements. The following recommendations for items to be relocated to lower discharge piping elevations (i.e., higher static pressures) downstream of the high points have been made:

1. Emergency Gas Treatment Room Coolers 2A and 2B

Refer to section R17-R17 of drawing 47W450-17. Relocate valves 2-67-685A and 2-67-685B and flow elements 2-FE-67-337 and 2-FE-67-339 from the present elevations (772'-11-1/8 and 772'-0-7/8) to the lowest possible elevation between top of cooler (approximately 764') and floor (757').

2. Upper Containment Vents Coolers 1A to 1D and 2A to 2D

Refer to section D9-D9 of drawing 47W450-9. Relocate manual flow control valves 583A through 583D (originally not shown in section D9-D9) from near the coolers' discharge to or below elevation 736'.

More information will be forwarded in our next report by September 23, 1983.