

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

July 16, 1984

BLRD-50-438/83-43
BLRD-50-439/83-36

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - REACTOR BUILDING SUMP PH VALUES BY
BABCOCK AND WILCOX - BLRD-50-438/83-43, BLRD-50-439/83-36 - THIRD INTERIM
REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Linda Watson on June 23, 1983 in accordance with 10 CFR 50.55(e) as
NCR PLN NEB 8307. This was followed by our interim reports dated July 21,
1983 and January 12, 1984. Enclosed is our third interim report. We
expect to submit our next report by November 27, 1985.

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
L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, 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

H. B. Barkley, Manager (Enclosure)
205 Plant Project Services
P.O. Box 1260
Lynchburg, Virginia 24505

8408090028 840716
PDR ADDCK 05000438
S PDR

OFFICIAL COPY
127
16

ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
REACTOR BUILDING SUMP PH VALUES BY BABCOCK AND WILCOX
BLRD-50-438/83-43, BLRD-50-439/83-36
NCR BLN NEB 8307
10 CFR 50.55(e)
THIRD INTERIM REPORT

Description of Deficiency

Babcock and Wilcox (B&W) is performing a recalculation of the Reactor Building (RB) sump pH values to include consideration of "dead" volumes not available for recirculation. The major contributor to the "dead" volume is the reactor vessel cavity (55 percent of total volume). While performing this recalculation in response to NRC's FSAR Question 281.2, B&W has found some problem areas. Depending on where the break is assumed, the RB pH may exceed the limits set by the NRC ($8.5 < \text{pH} < 11.0$) for prevention of stress corrosion and for materials compatibility.

Interim Progress

TVA has evaluated several options to resolve the concern. Based on this evaluation, TVA has chosen to perform an analysis in an attempt to show that the sump pH being outside the recommended limits set by the NRC is not detrimental to plant safety in either the short term or long term. A portion of the analysis required the compilation of test information on the strength and chloride leachability of concrete samples exposed to the conditions anticipated in the RV cavity. In order for the test results to be valid, the concrete samples require a 90-day curing time in order to meet the requirements placed on the concrete located in the RV cavity. Another portion of the analysis requires additional research on the effect of electrochemical polarization corrosion of dissimilar metals in the low pH water in the RV cavity.

If results are negative, a mechanical fix will be required and this is expected to require arriving at a decision regarding the type of fix and its implementation, including drawing revision and other engineering as required.

TVA will provide further details on this deficiency upon conclusion of our investigation.