

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

September 24, 1982

WBRD-50-390/82-16, WBRD-50-391/82-15
BLRD-50-438/82-11, BLRD-50-439/82-11
HTRD-50-518/82-06, HTRD-50-520/82-06
YCRD-50-566/82-05, YCRD-50-567/82-05

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

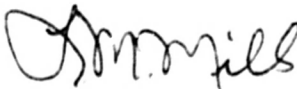
WATTS BAR UNITS 1 AND 2, BELLEFONTE UNITS 1 AND 2, HARTSVILLE A UNITS 1 AND 2, AND YELLOW CREEK UNITS 1 AND 2 NUCLEAR PLANTS - RESOLUTION OF UNANTICIPATED VIBRATORY LOADING CONCERNS

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on December 28, 1981 in accordance with 10 CFR 50.55(e) as NCR W-30-P for Watts Bar Nuclear Plant only. Subsequent investigation resulted in the initiation of a generic NCR documenting this deficiency for all TVA nuclear plants. This was reported to Inspector D. Quick on January 20, 1982 as NCR GEN CEB 8201. Because NCR W-30-P is a subset of NCR GEN CEB 8201, TVA is handling both NCRs as a single item. This was discussed with Inspector R. V. Crlenjak on February 9, 1982 and followed by our interim reports dated February 19 and April 28, 1982. Enclosed is our third interim report for GEN CEB 8201 and our final report for W-30-P. We expect to submit our next report on the generic deficiency on or about December 17, 1982.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688 for PWRs and J. Domer at FTS 858-2725 for BWRs.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



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

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NRC REGION II
ATLANTA, GEORGIA

ENCLOSURE

WATTS BAR UNITS 1 AND 2, BELLEFONTE UNITS 1 AND 2,
HARTSVILLE A UNITS 1 AND 2,
AND YELLOW CREEK UNITS 1 AND 2 NUCLEAR PLANTS
NCR GEN CEB 8201 AND W-30-P
WBRD-50-390/82-16, WBRD-50-391/82-15; BLRD-50-438/82-11, BLRD-50-439/82-11;
HTRD-50-518/82-06, HTRD-50-520/82-06
YCRD-50-566/82-05, YCRD-50-567/82-05
RESOLUTION OF UNANTICIPATED VIBRATORY LOADING CONCERNS
10 CFR 50.55(e)
THIRD INTERIM REPORT FOR GEN CEB 8201
FINAL REPORT FOR W-30-P

Description of Condition

Nonconformance report (NCR) W-30-P stated that anchors as designed and installed at WBN may not provide sufficient safety factors to withstand long-term vibratory loads. The NCR was based on information from the Phipps "Red Head" Engineering Bulletin 101 which recommends using a factor of safety of 8 to 15 for expansion anchors subject to vibratory loadings. TVA utilizes TVA Design Standard DS-C6.1 which is based on qualification tests of anchor types to establish design factors of safety. If systems perform as designed, and no loadings are induced on anchorages greater than design loadings, TVA's anchorage design is adequate for vibratory loadings. However, TVA has identified a programmatic deficiency in the detection and documentation of the resolution of certain anchorage and support problems in fluid systems, resulting from unanticipated vibratory loading occurring over an extended period of time. This type of loading could cause degradation or eventual failure of the anchorage. This condition has been extended to other TVA plants under NCR GEN CEB 8201.

The deficiency may occur only in systems or portions of systems which experience continuous or extended periods of vibration greater than those considered in the system design. At present, emphasis in the vibration program is placed on qualifying piping and equipment to an established qualification level in defined modes of operation. It does not identify potential problems except where unacceptable piping and/or equipment vibration levels are recorded.

Interim Progress for GEN CEB 8201

TVA is continuing with the development of a program to ensure both that piping systems operate within their design parameters to avoid unexpected vibration and fluid transients and that proper acceptance criteria, corrective action, and documentation methods are adequately defined for identifying and correcting deficiencies which can result when systems do not operate within these design parameters. A pilot program has been implemented and is currently under review by TVA.

NCR W-30-P

Safety Implications

Had this condition remained uncorrected, utilizing a safety factor of 4 would not adversely affect the safe operation of the plant. The safety factor of 4 utilized by TVA is adequate for the design of the affected systems.

Corrective Action

Investigation has shown the above is not a nonconforming condition. W-30-P was based on information from the Phillips "Red Head" Engineering Bulletin 101 which recommends using a factor of safety of 8 to 15 for expansion anchors subject to vibratory loadings. TVA utilizes TVA Design Standard DS-C6.1 which is based on qualification tests of anchor types to establish design factors of safety. Thus, TVA's anchorage design is adequate for vibratory loadings.