

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

February 19, 1982

WBRD-50-390/82-16, WBRD-50-391/82-16  
BLRD-50-438/81-11, BLRD-50-439/82-11  
HTRD-50-518/82-06, HTRD-50-519/82-05  
HTRD-50-520/82-06, HTRD-50-521/82-05  
PBRD-50-553/82-05, PBRD-50-554/82-05  
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 AND B UNITS 1 AND 2, PHIPPS BEND UNITS 1 AND 2, AND YELLOW CREEK UNITS 1 AND 2 NUCLEAR PLANTS - RESOLUTION OF UNANTICIPATED VIBRATORY LOADING CONCERNS - FIRST INTERIM REPORT

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. Enclosed is our first interim report. We expect to submit our next report by April 22, 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*  
for L. M. Mills, Manager  
Nuclear Regulation and Safety

Enclosure

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

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## ENCLOSURE

WATTS BAR UNITS 1 AND 2, BELLEFONTE UNITS 1 AND 2,  
HARTSVILLE A AND B UNITS 1 AND 2, PHIPPS BEND UNITS 1 AND 2,  
AND YELLOW CREEK UNITS 1 AND 2 NUCLEAR PLANTS  
WBRD-50-390/82-16, WBRD-50-391/82-16; BLRD-50-438/81-11, BLRD-50-439/82-11;  
HTRD-50-518/82-06, HTRD-50-519/82-05, HTRD-50-520/82-06, HTRD-50-521/82-05;  
PBRD-50-553/82-05, PBRD-50-554/82-05; YCRD-50-566/82-05, YCRD-50-567/82-05  
RESOLUTION OF UNANTICIPATED VIBRATORY LOADING CONCERNS  
10 CFR 50.55(e)  
FIRST INTERIM REPORT

### Description of Condition

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 GENCEB8201.

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

A task force composed of TVA's Divisions of Engineering Design and Nuclear Power (EN DES and NUC PR) personnel is jointly working to define a program to ensure that piping systems operate within their design parameters so as to avoid unexpected vibration and fluid transients and ensure 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. Emphasis of the programs will be placed on identifying and correcting system vibration and hydraulic transient problems as they affect the structural integrity of concrete anchorages. The program will also provide for evaluating the need for interim corrective action if vibration cannot be reduced to acceptable levels within an acceptable time.