Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

APR 09 1991

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

WATTS BAR NUCLEAR PLANT (WBN) - TVA TEST PROGRAM FOR EVALUATION OF SHALLOW UNDERCUT ANCHORS

Shallow undercut anchors are standard concrete anchors utilized at WBN and other TVA facilities. These shallow undercut anchors are embedded in the concrete less than the regular length undercut anchors specified in TVA Civil Design Standard DS-C1.7.1. The regular length anchors are intended to be "ductile" by failing in tension by rod fracture. The shallow undercut anchors are intended as substitutes for expansion anchors. The tensile capacity of the shallow undercut anchors is controlled by concrete pullout.

For shear loadings, the design standard allowed the shear capacity of the rod to be used for both shallow and regular length anchors. The use of the full shear allowable for shallow undercut anchors is based on tests by the manufacturer at another nuclear utility. In response to questions regarding the applicability of the existing test data, TVA has initiated a test program to verify that shallow undercut anchors not near a free edge have ultimate shear capacities exceeding the design requirements.

Singleton Material Laboratory was contracted to perform this evaluation for TVA. A concrete slab 7 feet by 13 feet with a minimum thickness of 15 inches will serve as the test facility. The concrete will be equivalent to concrete Class 300.75 AFW, in accordance with TVA General Engineering Specification G-2. The concrete is required to be at least 28 days old when the first anchors are tested.

Upon conclusion, results of this test will be summarized in a test report which documents load and deflection measurements for all shallow undercut anchors, the mechanism of failure, the concrete class, and all test parameters of the concrete such as air content, slump, age, and compressive strength.

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The estimated schedule for completion of this test is July 15, 1991, at which time the summary report will be available for NRC review.

TVA will evaluate the test results for acceptability. If it is determined that unsatisfactory conditions exist, the corrective action program process will be utilized to initiate proper corrective actions (reference Nuclear Power Standard 3.1.1, "Corrective Action"). Generic applicability to other TVA facilities will also be assessed as required by the corrective action process. In this way, implications to TVA operating facilities will be dispositioned as appropriate.

If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. N. Shell

for E. G. Wallace, Manager
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ENCLOSURE

TVA TEST PROGRAM FOR EVALUATION OF
SHALLOW UNDERCUT ANCHORS FOR SHEAR

LIST OF COMMITMENTS

A test program will be performed to verify that the ultimate shear capacity of shallow undercut anchors exceeds design requirements. Completion schedule for this test is July 15, 1991.