

DMB

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

LP 5N 157B Lookout Place

05 DEC 3 A 7:25 November 25, 1985

U.S. Nuclear Regulatory Commission  
Region II  
ATTN: Dr. J. Nelson Grace, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Dear Dr. Grace:

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE REGION II INSPECTION REPORT  
50-327/85-29 AND 50-328/85-29 - RESPONSE TO VIOLATIONS

Enclosed is our response to R. D. Walker's October 25, 1985 letter to H. G. Parris transmitting IE Inspection Report Nos. 50-327/85-29 and 50-328/85-29 for our Sequoyah Nuclear Plant, and his November 5, 1985 letter which transmitted the associated Notice of Violation, which cited TVA with two Severity Level IV Violations.

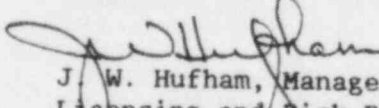
We have evaluated your concerns about the generic implications of these problems. Our review indicates they are isolated incidents as specified in our response. Our investigations and corrective actions are enclosed. These concerns have also been addressed by the TVA Nuclear Performance Plan transmitted to NRC by C. H. Dean's November 1, 1985 letter to W. J. Dircks (refer to Volume 2, section IV).

If you have any questions, please get in touch with R. E. Alsup at FTS 858-2725.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
J. W. Hufham, Manager  
Licensing and Risk Protection

Enclosure

cc: Mr. James Taylor, Director (Enclosure)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

8512100021 851125  
PDR ADOCK 05000327  
G PDR

11  
IE01

ENCLOSURE  
RESPONSE - NRC-OIE INSPECTION REPORT  
NOS. 50-327/85-29 AND 50-323/85-29  
ROGER D. WALKER'S LETTERS TO H. G. PARRIS  
DATED OCTOBER 25, 1985 AND NOVEMBER 5, 1985

Violation 50-327/85-29-01 and 50-328/85-29-01

10 CFR 50, Appendix B, Criterion III requires that measures shall be established to assure that the design basis for those structures and systems important to safety are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents. The design control measures shall provide for verifying or checking the adequacy of design.

Contrary to the above, cable tray support systems for the two diesel generator buildings were not being designed to appropriate quality standards in that the rigidly or close to rigidly designed cable tray support systems failed to consider the effects of the response spectrum zero period acceleration (ZPA) or the ground acceleration in the design analysis.

This is a Severity Level IV violation (Supplement I).

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reason for the Violation

Certain computer-generated dynamic analyses used during analysis of cable tray supports in the Diesel Generator and Additional Diesel Generator Buildings created a situation which caused an unconservative determination of seismic loads on the tray support in some cases.

The specific designer did not allow enough modes of vibration to account for significant participation in the direction of the brace. This caused the acceleration in this direction to be less than the ground motion. The designer should have compared the computed value to the maximum floor acceleration at the elevation and used the larger of these two values.

3. Corrective Steps Taken and Results Achieved

All cable tray support calculations in the Diesel Generator and Additional Generator Buildings have been checked for a failure to take the ZPA into account. In those instances where the originally calculated acceleration was less than the ZPA, the ZPA was applied in the reanalysis. Results of these calculations showed that with these additional loads, all member stresses, weld stresses, and anchorage loads are well within allowables. Therefore, no structural modifications are required. Sample calculations for this reanalysis effort have been sent to the NRC Region II Office.

Other calculations (conduit supports, duct supports, pipe support) are currently being checked to ensure this method was either not used or was used with the knowledge that the ground acceleration is the minimum acceleration. This action will be complete prior to startup of unit 2.

This method of analysis was used very little and has not been identified in any other building at Sequoyah Nuclear Plant. It is no longer used by the Sequoyah designers.

The specific designer's work was also reviewed for cable tray supports in the Control Building and Auxiliary Building and in both cases one of the following methods of determining the seismic loads was used:

- (a) Peak values from the response spectra.
- (b) Dynamic analysis using a STRUDL program which does not use the superposition method.

4. Corrective Steps Taken to Avoid Future Violations

The steps described in section 7 of the NRC inspection report have been taken. Specifically, they are:

- A. A design input memorandum for the cable tray support design criteria (SQN-DC-V-1.3.4) has been issued. It assigns the civil project engineer responsibility for limiting the performance of dynamic modal analysis to selected qualified engineers.
- B. The Civil Engineering Branch (CEB) Central Staff has provided direction and training for the reanalysis effort and will continue to do so for any future designs or evaluations.

5. Date When Full Compliance Will Be Achieved

The plant was in full compliance on September 10, 1985 when the review of calculations in the Diesel Generator and additional Diesel Generator Buildings was completed.

Violation 50-327/85-29-02 and 50-328/85-29-02

10 CFR 50, Appendix B, Criterion III requires that measures shall be established to assure that the design basis for those structures and systems important to safety are correctly translated into drawings and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents. Design requirements for anchor bolt/baseplate interaction specify a baseplate hole size 1/16-inch larger than the nominal anchor bolt size.

Contrary to the above, 16 baseplates for the cable tray support systems in the auxiliary building were improperly installed in that every hole in the baseplates was drilled 3/8-inch larger than the required hole size. This is due to a design error shown on design drawing 48N1369, Rev. 2 where 1-3/16 inch diameter holes in the baseplate were specified for the 3/4-inch diameter anchor bolts. In this case, the correct hole size in the baseplate should have been 13/16-inch. As a result, the baseplates installed may not be able to serve their intended function as required by the design.

This is a Severity Level IV violation (Supplement I).

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reason for the Violation

The incorrect dimension was on the final drawing due to a misinterpretation of the designer's sketch by the drafter. The error was not found in the checking and review process because the original design calculations were not compared to the final drawing.

3. Corrective Steps Taken and Results Achieved

Although analyses have shown that the baseplates will not fail,

- a. The oversized holes are being repaired by welding a square washer plate with 13/16-inch-diameter hole (1/4- or 3/8-inch plate) over the existing oversized holes to provide the correct clearance for the 3/4-inch-diameter wedge bolts.
- b. All the drawings in the Auxiliary and Control Buildings drafted by this drafter were checked, and this mistake did not recur. A number of calculations, which were checked by the same checker, have been subsequently inspected, and no recurrence of this problem was noted.

4. Corrective Steps Taken to Avoid Future Violations

This incident occurred due to an oversight by the checker and was found to be isolated after checking calculations and drawings as stated in No. 3 above.

No further action is required.

5. Date When Full Compliance Will Be Achieved

TVA will be in full compliance upon completion of the work to add the welded washer plate to the existing plate which is scheduled for completion by December 31, 1985.