

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

May 18, 1982

REGIONAL OFFICE
ATLANTA, GEORGIA
MAY 20 4 5: 0~

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:

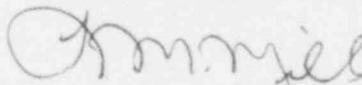
SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - SPENT FUEL POOL GATES - NCR
SQN NEB 8012 - FOURTH REVISED FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector J. D. Wilcox on May 1, 1980 in accordance with 10 CFR 50.55(e). Reports were submitted on May 29, June 18, July 2, September 8, and October 15, 1980. Enclosed is our fourth revised final report.

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, Manager
Nuclear Licensing

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
SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2
SPENT FUEL POOL GATES
NCR SQN NEB 8012
10 CFR 50.55(e)
FOURTH REVISED FINAL REPORT

Description of Deficiency

The NCR states that the spent fuel pool gates (one to the transfer canal and one to the cask loading area) are not designed to Seismic Category I requirements in accordance with Regulatory Guide 1.13. Similar NCR's were written on Watts Bar (WBNNEB8005) and Bellefonte (BLNNEB8005) Nuclear Plants.

Safety Implications

Structural failure of the gates during a seismic event could result in damage to stored spent fuel elements. This could result in radiation levels in the spent fuel pool area higher than those assumed in the plant safety analysis, and thus could result in doses to plant personnel and the public greater than has been analyzed. This safety-related function results in a Seismic Category I(L) classification of the gates. There was a question within TVA as to whether the gates also have a primary safety function of maintaining sufficient water level above the spent fuel. This function, if verified, would have made the gates Seismic Category I and would require QA program coverage of the gates' fabrication. It was found by analyses of pool water level drops due to leaking gates that this is not a required function of the gates; the water level will not drop sufficiently in any case to permit excessive radiation levels in the pool area.

Corrective Action

The spent fuel pool gates for all three plants were designed by TVA, considering seismic loadings. The fabrication was contracted out with the design ensuring the seismic integrity of the gates although the procurement documents did not otherwise specify the seismic requirements. Quality assurance program coverage was not specified because the original designs considered that the gates would normally be stored, and would be installed only when it would be necessary to dewater the transfer canal of the cask loading area for maintenance.

Because of increasing QC and QA documentation emphasis within TVA in the years since the gate fabrication was contracted out, the QA aspects of the gates' integrity is to be verified for all three plants. This will be done through the evaluation of inspection and repair records at the fabricators' facilities and at the sites if possible. Alternatively, certificates of compliance will be obtained from the fabricators to verify that the specified materials and construction standards were used in the gates' fabrication. Failing both of the above, the verification will be obtained through testing and inspection of the materials and welds in the gates. Any required corrective actions will be taken. This work does not affect the reportability to NRC of the three NCR's discussed above.

The Sequoyah and Watts Bar gate designs were reanalyzed. The only case for potential failure among the four gates at the two plants was for the case of water on both sides of the installed gates. Only the Sequoyah cask loading area gate was found to be inadequate. The problem at Sequoyah has been corrected by administratively requiring the gate to remain in the storage location when the cask loading pit is not in use. These administrative controls will remain in place until the subject gate has been modified to be seismically qualified.

At the present time, there is no spent fuel stored in the spent fuel pit. Therefore, if a seismic event occurred, failure of this gate would not create a safety problem. The gate will be modified before placing any spent fuel in the spent fuel pit.

The transfer canal and the cask loading area gates at Sequoyah and Watts Bar were designed with paired restraints attached to the pool wall at the top and at the bottom of the gates. Midheight restraints were later added to the Watts Bar gates to correct another problem. The midheight restraints account for the Watts Bar cask loading area gate being qualified. Midheight restraints were not installed at Sequoyah.

The Bellefonte gates were designed after the analysis was made including the case of water on both sides of the gates. The resultant loads were therefore considered in the design, and no midheight restraints were needed.