



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

May 25, 2012

10 CFR 21.21(a)(2)

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 1  
Facility Operating License No. NPF-90  
NRC Docket No. 50-390

Subject: **10 CFR 21 Interim Report - Unexpected Degradation of Vital Batteries III and IV**

Reference: Letter from TVA to NRC, Licensee Event Report 390/2012-001, "Failure to Meet Technical Specifications due to Issues Associated with Vital Battery Surveillance Program," dated March 16, 2012

On March 16, 2012, the Tennessee Valley Authority (TVA) submitted Licensee Event Report (LER) 390/2012-001, "Failure to Meet Technical Specifications due to Issues Associated with Vital Battery Surveillance Program." The LER described an incident where the acceptance criterion of Technical Specification Surveillance Requirement 3.8.4.14 was not met due to unexpected degradation of Vital Batteries III and IV.

Preliminarily, TVA determined that a manufacturing deficiency was the direct cause of the unexpected degradation, and on March 26, 2012, it was determined that a possible reportable condition could exist pursuant to 10 CFR 21, "Reporting of Defects and Noncompliance." TVA is investigating this matter; however, the investigation will not be completed within 60 days from March 26, 2012 (i.e., May 25, 2012). Therefore, pursuant to the reporting requirements of 10 CFR 21.21(a)(2), this interim report is being submitted to the NRC. The enclosure to this letter provides information required by 10 CFR 21.21(a)(2) for the interim report of this condition.

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There are no new regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact D. K. Guinn, WBN Site Licensing Manager, at (423) 365-1589.

Respectfully,

A handwritten signature in black ink, appearing to read 'D. E. Grissette', with a stylized flourish at the end.

D. E. Grissette  
Site Vice President  
Watts Bar Nuclear Plant

Enclosure: 10 CFR 21 Interim Report - Unexpected Degradation of Vital Batteries III  
and IV

cc (Enclosures):

NRC Regional Administrator - Region II

NRC Senior Resident Inspector - Watts Bar Nuclear Plant

## ENCLOSURE

### **10 CFR 21 Interim Report - Unexpected Degradation of Vital Batteries III and IV**

#### Name and Address of the Individual Making the Interim Report

Mr. D. E. Grissette  
Site Vice President  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
1270 Highway 68  
Spring City, TN 37381

#### Description of the Deviation or Failure to Comply that is being Evaluated

On March 16, 2012, the Tennessee Valley Authority (TVA) submitted Licensee Event Report (LER) 390/2012-001, "Failure to Meet Technical Specifications due to Issues Associated with Vital Battery Surveillance Program." The LER described an incident where the acceptance criterion of Technical Specification Surveillance Requirement (SR) 3.8.4.14 was not met due to unexpected degradation of Vital Batteries III and IV.

Vital Battery III failed to meet the acceptance criterion of the battery capacity test in accordance with Technical Specification SR 3.8.4.14 on November 21, 2011. During the performance of the root cause analysis for the unexpected degradation of Vital Battery III, an independent engineering analysis of the completed capacity test surveillance package for Vital Battery IV determined that the recorded results of the Vital Battery IV battery capacity test performed on February 10, 2011 were incorrect, and that the battery capacity test for Vital Battery IV did not meet the acceptance criterion of Technical Specification SR 3.8.4.14. Therefore, both Vital Batteries III and IV failed to meet the Technical Specification SR 3.8.4.14 acceptance criterion for the referenced capacity tests. Vital Batteries III and IV have been replaced and returned to service.

Vital Batteries III and IV were approximately 16 years old when they failed their capacity tests, and had a vendor qualified service life of 20 years. Both batteries were maintained and operated in a manner that is consistent with vendor requirements and the recommendations of the Institute of Electrical and Electronics Engineers (IEEE) standards IEEE 450-1980 and IEEE 450-1995. Therefore, there were no known conditions to promote premature aging or damage of Vital Batteries III and IV. The Tennessee Valley Authority (TVA) preliminarily determined that a manufacturing deficiency associated with the forming of the Vital Batteries III and IV cells' positive plates was the direct cause of the unexpected degradation of Vital Batteries III and IV. This determination was based on the initial results of the vendor's destructive failure analysis. The final results of the vendor's analysis have not yet been provided to TVA.

## ENCLOSURE

### **10 CFR 21 Interim Report - Unexpected Degradation of Vital Batteries III and IV**

#### Evaluation Status

The vendor is analyzing cells from Vital Batteries III and IV to determine the cause of the unexpected degradation. Upon receipt of the vendor's final report, TVA will evaluate the vendor's results and determine if this condition is reportable pursuant to 10 CFR 21.

#### Date on which Evaluation will be Completed

The evaluation will be completed by July 24, 2012 or a follow-up interim report will be submitted pursuant to 10 CFR 21.21(a)(2).