

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

JUL 13 1989

WBRD-50-390/89-03
WBRD-50-391/89-03

10 CFR 50.55(e)

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) UNIT 1 - POTENTIAL FAILURE OF MELAMINE TORQUE
SWITCHES IN LIMITORQUE ACTUATORS - WBRD-50-390/89-03 AND WBRD-50-391/89-03 - FINAL
REPORT

The subject deficiency was initially reported to NRC Region II Inspector Ken Barr on February 16, 1989, in accordance with 10 CFR 50.55(e) as Condition Adverse to Quality Reports (CAQRs) WBP 890018 and WBP 890116. An interim report was provided on March 17, 1989. Enclosure 1 contains our final report. Enclosure 2 contains a list of the commitments made in this report. We consider 10 CFR 21 applicable to this deficiency.

If there are any questions, please telephone G. R. Ashley at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

M. Ray
Manager, Nuclear Licensing
and Regulatory Affairs

Enclosures
cc: See page 2

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U.S. Nuclear Regulatory Commission

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2
MELAMINE TORQUE SWITCH POTENTIAL FAILURES
CAQRs WBP 890018 AND WBP 890116
WBRD-50-390/89-03 AND WBRD-50-391/89-03
10 CFR 50.55(e)

FINAL REPORT

Description of Potential Deficiency

Limatorque Corporation, Lynchburg, Virginia, provided TVA a 10 CFR Part 21 notification of the potential failure of Melamine torque switches supplied in certain valve actuators. The affected actuators are types SMB-00 and SMB-000 (including types SB-00, SB-000, SBD-00, and SBD-000 actuators which are variations of the SMB-00 and SMB-000 types), with serial numbers lower than 233218 and 354839, respectively. Other types of Limatorque actuators are not affected by this notification. Limatorque recommends that all of the subject Melamine torque switches be replaced by Fiberite torque switches.

The potential failures may be from either of two types and may occur in harsh or mild environments:

1. Failures due to postmold shrinkage of the Melamine because of age and high temperature environments causing cam binding and resulting in the valve stopping in midtravel.
2. Failures due to breakage of the cam lug which disables the torque switch. This could result in possible damage to the valve, actuator, or motor.

Of the approximately 590 Limatorque actuators in units 1 and 2 at Watts Bar, approximately 373 are of the affected types, approximately 300 of which are safety-related. (Note: Not all of these actuators require that the torque switch be wired in.) Also, existing procedures and environmental qualification binders permit the affected torque switches to be installed as replacement parts during maintenance of the affected actuator types, as well as those outside the serial number ranges specified by Limatorque. These actuators have been supplied to WBN by Limatorque through various valve supplier contracts with TVA.

Safety Implications

If this deficiency had gone undetected and uncorrected, torque switches in safety-related valve actuators could have eventually experienced failure. Failure of the torque switches could damage valves, actuators, or motors and prevent the associated valves from performing their safety functions.

Corrective Action

To correct the reported deficiency, TVA will identify affected safety-related valve actuators and replace the defective torque switches. To prevent future installation, Melamine torque switches will be removed from stock. Additionally, environmental qualification binders and the appropriate corrective and preventive maintenance procedures will be revised to preclude use of the defective switches. All corrective actions will be completed by fuel load of the respective unit.

ENCLOSURE 2

LIST OF COMMITMENTS

TVA will complete the following corrective actions by fuel load of the respective unit:

1. Identify affected safety-related valve actuators.
2. Replace the defective torque switches.
3. Melamine torque switches will be removed from stock.
4. Environmental qualification binders will be revised to preclude use of the defective switches.
5. Appropriate corrective and preventive maintenance procedures will be revised to preclude use of the defective switches.