

TENNESSEE VALLEY AUTHORITY
USNRC REGION II
CHATTANOOGA, TENNESSEE 37401, GEORGIA
400 Chestnut Street Tower II

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November 17, 1981

SQRD-50-328/81-29

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303



Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNIT 2 - 460-VOLT MOTOR DOCUMENTATION -
SQRD-50-328/81-29 - THIRD INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on April 13, 1981 in accordance with 10 CFR 50.55(e) as NCR SQN EEB 8115. Interim reports were submitted on April 28 and August 25, 1981. Enclosed is our third interim report. We expect to submit our next report by August 18, 1982.

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
L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

SEQUOYAH NUCLEAR PLANT UNIT 2 460-VOLT MOTOR DOCUMENTATION SQRD-50-328/81-29 THIRD INTERIM REPORT

Description of Deficiency

TVA's Division of Engineering Design (EN DES) calculations for voltage analysis of the Class 1E 480-volt ac auxiliary power system assumed, where vendor documentation of minimum starting voltage was not available, that 460-volt motors could start with 85 percent of rated voltage at their terminals. NEMA MG-1-20.45, 1969, requires induction motors to operate within ± 10 percent of their rated voltage. There are 145 460-volt motors fed from the 480-volt Class 1E ac auxiliary power system of units 1 and 2 for which TVA does not have documented minimum starting voltage and that could have less than 90 percent rated voltage at their terminals during starting under worst case conditions (i.e., two-unit full-load rejection).

Interim Progress

An evaluation of the 145 affected motors shows that 54 motors or 37 percent of the total do not perform a safety-related function. TVA is in the process of contacting the vendors of the remaining 91 Class 1E motors to determine if they can start with 85 percent of rated voltage at their terminals. Of the 91 motors, vendors have verified that 18 of the motors will start under the reduced voltage conditions. Another 13 of these motors are being replaced in the TVA effort to comply with NUREG-0588. The specifications for these replacement motors require that the motors be capable of accelerating their connected loads from zero speed to rated speed within 5 seconds with a terminal voltage of 80 percent of rated motor voltage throughout the starting cycle except that, for the first second of the starting cycle, the terminal voltage may drop to 75 percent of rated motor voltage. These motors should be replaced by June 1982. Information is still required on 60 motors or approximately 40 percent of the original 145 motors. A design modification performed under ECN L5377, could significantly reduce the number of affected motors. The ECN is scheduled to be completed on units 1 and 2 by September 1982, and it involves separating the 480-volt switchgear motors and the loads on the motor control centers (MCC). This will improve the voltage regulation on each transformer and thus improve the voltage available at the motor terminals and the MCC buses. TVA will continue to contact vendors to determine the motor starting-voltage capabilities. We will begin the procurement process for replacing those Class 1E motors that we have not confirmed to be able to start with 85 percent of rated voltage at their terminals by December 15, 1981.