

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

June 4, 1981

SQRD-50-328/81-39

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 - SI ACTUATED SIMULTANEOUS MOTOR STARTING -
SQRD-50-328/81-39 - FIRST INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. W. Crlenjak on May 5, 1981 in accordance with 10 CFR 50.55(e) as NCR SQN EEB 8116. Enclosed is our first interim report. We expect to submit our next report by June 15, 1981.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

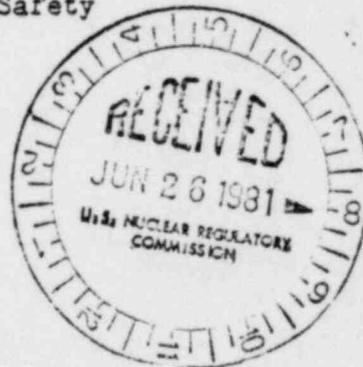
TENNESSEE VALLEY AUTHORITY

L. M. Mills by DSK

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
SI ACTUATED SIMULTANEOUS MOTOR STARTING
SQRD-50-328/81-39
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

During a review of preoperational test results, it was discovered that for a safety injection actuation with offsite power available a simultaneous start signal is sent to the residual heat removal pump, safety injection pump, containment spray pump, centrifugal charging pump, component cooling system pump, and several valve operators. During the time the first four pumps are accelerating, the voltage at the terminals of the unit 2, 350 horsepower component cooling system pumps could be as low as 354 volts or 77 percent of rated voltage. These motors are only rated to start at 80 percent of rated voltage. The acceleration times for the four medium-voltage motors during their simultaneous starting (98 percent rated voltage) are approximately two to five seconds. During this period of time, the unit 2 component cooling system pumps could trip due to over-current and be unavailable for providing their safety function.

Interim Progress

TVA has requested the vendor for the component cooling system pump motors to provide acceleration times for 80 percent rated voltage during starting. It is possible that the acceleration is of short enough duration that when the medium voltage motors have accelerated and the 480V voltage restored, the motors will accelerate and not trip due to overcurrent. Also, after further analysis of the component water system, we have determined that a minimum of one pump will be required to operate per unit during normal operation. Should an SI occur, only one pump maximum per unit plus the swing pump would be required to start. However, for the accident unit, a minimum of two pumps are required to provide cooling water to the NSSS equipment.

TVA is also in the process of analyzing the motor-operated valves and any other 460V motors on either unit that may be activated by an SI signal or by process control to determine if similar problems may exist during the depressed voltage scenario described above. However, the unit 2 component cooling system pump has the worst voltage drop during starting, so any other motors would have at least 77 percent of rated voltage available at their terminals should they be required to start during the scenario.

The 480V Class IE ac auxiliary power system is designed to operate properly if the 6.9-kV shutdown board voltage minimum is at 6,560 volts. Therefore, TVA is in the process of analyzing our reactor cooling requirements to determine if the simultaneous motor starting can be eliminated.