

400 Chestnut Street Tower II

June 15, 1981

81-464-000
Part 21

SQRD-50-328/81-35

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 - POKV OPERATING TIME - SQRD-50-328/81-35
- FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on April 24, 1981 in accordance with 10 CFR 50.55(e) as NCR SQN NEB 8122. An interim report was submitted on May 26, 1981. Enclosed is our final report. We consider 10 CFR 21 applicable to this deficiency.

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, 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
PORV OPERATING TIME
SQRD-50-328/81-35
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The operational time requirement for the pressurizer PORV (manufactured by Copes-Vulcan) is two seconds maximum. The PORV's are being used as the pressure relieving devices in the cold overpressurization system. The operating time of the PORV's at normal system pressure meets the design requirement of two seconds. As the system pressure decreases to 500 lb/in²g, the operating time of the PORV's increases to between five and six seconds. This operating time for low pressures is unacceptable because the Westinghouse cold overpressurization setpoint analysis assumed an operating time of two seconds as stated in the FSAR (section 5.2.2.4.2). The reason for the increased operating time is that, as system pressure decreases, less system force is being exerted on the valve plug which assists the operator to open the valve. The present air supply to the valve operator is insufficient to open the valve in the required time.

The PORV's at Sequoyah unit 1 are Masoneilan valves and the PORV's at Watts Bar units 1 and 2 are Fisher valves. Therefore, this condition applies only to Sequoyah unit 2.

Safety Implications

Had this condition remained uncorrected, the cold overpressurization system would not operate as assumed in the Sequoyah FSAR. The cold overpressurization system could not have adequately mitigated the effects of all low temperature overpressure transients. Events could have occurred where the 10CFR50 Appendix G reactor vessel nil ductility transition temperature (NDT) limits could have been exceeded. Such events could have occurred only when the plant was in a water solid cold shutdown condition.

Corrective Action

The air supply to the valve operator will be modified to provide sufficient air to the valve operator to achieve a 2-second stroke time. TVA will replace the present 3/8-inch air supply line from the air headers to the PORV's with a 1/2-inch air supply line. If this change does not adequately correct the deficiency, the 1/4-inch NPT valve operator port will be changed to 1/2 inch. The above changes have been approved by Westinghouse.

The valve will be retested to verify the adequacy of the repairs. All modifications and tests will be completed before initial criticality of Sequoyah unit 2.