Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

JUL 02 1991

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

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - DOCKET NOS. 50-327 AND 50-328 - FACILITY OPERATING LICENSES DPR-77 AND DPR-79 - SPECIAL REPORT 91-08

The enclosed special report provides details concerning the inoperability of the fire suppression header to the emergency diesel generator building that supplies the building corridor sprinkler and hose stations. This issue was initially reported by telephone notification at 2145 Eastern daylight time on June 18, 1991, and by facsimile dated June 19, 1991. The noncompliance conditions are applicable to both Units 1 and 2. This report is being made in accordance with Technical Specification 3.7.11.1, Action Statement b.2.c.

If you have any questions concerning this submittal, please telephone James W. Proffitt at (615) 843-6651.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosure
cc: See page 2

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ENCLOSURE
14-Day Follow-Up Report
SPECIAL REPORT 91-08

Description of Condition

On June 18, 1991, at 1335 Eastern daylight time (EDT) with Units 1 and 2 operating at approximately 100 percent power, Limiting Conditions for Operation (LCOs) 3.7.11.1, 3.7.11.2, and 3.7.11.4 were entered as a result of the fire header to the emergency diesel generator building being removed from service. The fire header was isolated because of an underground pipe rupture of the fire protection system. This fire header is the supply to the diesel generator building corridor sprinkler and building hose stations. Upon entering the LCOs, a backup fire suppression system was established by routing fire hoses from nearby hose stations to the affected areas, and fire watches were established for the affected areas. NRC was notified at 2145 EDT on June 18, 1991, as required by LCO 3.7.11.1, Action Statement b.2.a.

On June 1, 1991, at 0345 EDT, Operations' personnel had identified a leak from Fire Hydrant 0-26-886. Upon investigation by Fire Operations' personnel, it was determined that because the hydrant would not open or close, the valve stem to the fire hydrant was not functioning properly. The fire hydrant was isolated by closing fire hydrant Isolation Valve 0-26-534. A work request to repair the hydrant and a Physical Security Instruction 13, Appendix C, "Fire Protection Program," were provided to document the identified problem.

Surveillance Instruction (SI) 0-SI-FPU-026-171.0, "Periodic Flushing and Chlorination of High-Pressure Fire Protection System," was being performed on June 18, 1991; and flushing of Fire Hydrant 0-26-886 was initiated. The SI is performed once every six months. The fire hydrant was placed in the full-open position with a discharge gated wye installed having a 2 1/2-inch valve partially open and fire hydrant Isolation Valve 0-26-534 closed. The fire hydrant isolation valve was slowly opened. The water coming out of the gated wye began to cloud with Valve 0-26-534 not fully opened. Fire Operations' personnel observed a burst of dirty water followed by a loud noise, which resulted in a loss of waterflow through the fire hydrant. The fire hydrant isolation valve was closed, and water was observed flowing from the ground. The header was immediately isolated by closing Valves 0-26-1618 and 0-26-683. Operations' personnel entered LCOs 3.7.11.1, 3.7.11.2, and 3.7.11.4; and appropriate actions were taken to comply with the requirements of the LCOs.

Cause of Condition

A portion of six-inch fire protection system yard pipe that had been isolated and the fire hydrant were removed for analysis. The fire header contained a crack that was approximately 46 inches in length and ran axially along the bottom of the pipe. The cracking of the pipe apparently occurred when the fire hydrant valve closed suddenly.

An analysis of the valve stem of the fire hydrant indicated that the safety stem coupling was damaged (broken) and decoupled the upper stem from the lower stem. It could not be determined when or how the safety stem coupling was damaged. It is considered that during the operation of the fire hydrant, it may have been over torqued, which could have caused the safety stem coupling to be damaged. It is believed that this condition resulted in the the fire

hydrant valve becoming loose and acting as a "check valve." It is concluded that the loud noise that the Fire Operations' personnel heard was the fire hydrant valve suddenly slamming closed, which was caused by the flow of water striking the bottom of the lower valve plate and the cracking of the pipe. The valve was free to move because of the damaged brass safety stem coupling. The sudden closure of the fire hydrant valve resulted in a water hammer that exerted significant force on the piping apparently sufficient to crack the pipe.

Corrective Action

Immediate corrective action was taken to stop the leak by isolating the fire protection header to the emergency diesel generator building and complying with the LCO action, which requires backup fire suppression and the establishment of a fire watch for the affected area. NRC was notified of this condition at 2145 EDT on June 18, 1991, followed by a facsimile dated June 19, 1991.

The appropriate portions of the fire protection header and fire hydrant have been removed, analyzed, and repaired and/or replaced.

The investigation into the cause of this event is ongoing; a supplemental report will be issued by August 7, 1991.

Commitment

A supplemental report will be issued by August 7, 1991.