



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

J. L. Wilson  
Vice President, Sequoyah Nuclear Plant

May 18, 1992

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

Gentlemen:

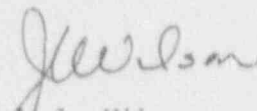
In the Matter of )  
Tennessee Valley Authority ) Docket Nos. 50-327  
50-328

SEQUOYAH NUCLEAR PLANT (SQN) - UNITS 1 AND 2 - FACILITY OPERATING  
LICENSES DPR-77 AND DPR-79 - HIGH-PRESSURE FIRE PROTECTION (HPFP) SYSTEM  
INOPERABILITY - SPECIAL REPORT 92-05

The enclosed special report provides details concerning the inoperability of the fire suppression water system in the condenser circulating water intake pumping station. This condition was initially reported by telephone notification at 1930 Eastern daylight time on May 2, 1992, and by facsimile dated May 4, 1992. 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 M. A. Cooper at (615) 843-8924.

Sincerely,

  
J. L. Wilson

Enclosure  
cc: See page 2

220055

9205260005 920518  
PDR ADOCK 05000327  
S PDR

*Handwritten initials/signature*

U.S. Nuclear Regulatory Commission

Page 2

May 18, 1992

cc (Enclosure):

Mr. D. E. LaBarge, Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852

NRC Resident Inspector  
Sequoyah Nuclear Plant  
2600 Igou Ferry Road  
Soddy-Daisy, Tennessee 37379

Mr. B. A. Wilson, Project Chief  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

## ENCLOSURE

### SEQUOYAH NUCLEAR PLANT (SQN) SPECIAL REPORT 92-05 14-DAY FOLLOW-UP REPORT

#### Description of Condition

On May 2, 1992, at 1930 Eastern daylight time (EDT), with Unit 1 in Mode 2 returning to power from a forced outage, and Unit 2 in Mode 5 recovering from a Cycle 5 refueling outage, SQN entered Limited Conditions for Operation (LCO) 3.7.11.1 and 3.7.11.4. LCOs 3.7.11.1 and 3.7.11.4 were entered because of a leak in the high-pressure fire protection (HPFP) piping system, causing the fire-hose stations required by technical specification (TS) in the condenser circulating water (CCW) intake pumping station to be declared inoperable.

The leak was detected when water was noticed flowing out of the ground in front of the CCW intake pumping station. The site Fire Protection supervisor and the Technical Support engineer were notified, and they subsequently concluded that the leak was originating from a 10-inch, cast-iron HPFP line. Isolation of the leak disrupted the supply of HPFP water to the CCW intake pumping station fire-hose stations, which are listed in fire-hose station LCO 3.7.11.4 as being required to be operable. The line was isolated to stop the leak and to permit maintenance personnel to repair the leaking pipe joint. The normal supply flow paths for the remaining fire suppression water system were also affected because of the off-normal alignment. LCO 3.7.11.1 was therefore appropriately entered.

#### Cause of Condition

The pipe leak was determined to be in a supply line slip joint connection and has been attributed to the misalignment of the pipe in the slip joint bell connector. The reason for the pipe misalignment is indeterminate. The cast-iron pipe is connected from one section to another by simply inserting the male end into the bell or hub end of the next section. A rubber gasket inserted in the bell seals the joint, and a seal ring and tie rod arrangement maintains the joint. The fire protection piping in general is systematically anchored by means of concrete kickers at the turns and mechanical connecting rods at the valves and

hydrants to prevent movement and disconnection because of water hammer and the normal force of high pressure and high volume of water necessary for fire protection. However, it was found that the affected section of piping was not installed according to the general installation requirements. The piping was installed in the 1977-78 time frame and, for this reason, it could not be determined why the piping was not installed in accordance with general installation requirements.

This particular section of pipe was installed approximately 15 years ago and was buried less than the recommended 3-foot depth. The pipe was approximately 18 inches under the surface of the ground. Heavy equipment has periodically been moved in this area and is suspected to have contributed to the pipe becoming misaligned to the point that the gasket was not effective in containing the high-pressure water surges. The pipe was also not adequately inserted into the bell end of the adjoining pipe, as normally required and recommended by construction practices.

It could not be determined if the potential for a similar situation exists elsewhere in the HPPF piping. No additional similar cases were identified from review of in-house experience and maintenance history. Further, the condition is self-revealing.

#### Corrective Actions

Actions were immediately taken to isolate the leaking portion of the piping and to establish a backup suppression system for the inoperable TS hose stations within one hour, as required by Action Statement 3.7.11.4(a). This was accomplished by routing fire hoses into the CCW intake pumping station from a nearby charged yard hydrant. A backup fire suppression system, as required by TS Action Statement 3.7.11.1(b)(1), was established within 24 hours to augment the off-normal alignment of the remaining fire suppression system by positioning a fire pumper at the plant discharge station and tying into the yard fire protection piping. The pumper was capable of taking suction from the discharge canal.

The line was repaired, the system was realigned to normal, and LCOs 3.7.11.1 and 3.7.11.4 were exited at 2300 EDT on May 9, 1992.

#### Commitments

None.