



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS  
RELATIVE TO PROPOSED TECHNICAL SPECIFICATION CHANGE

REGARDING FIRE DETECTOR SURVEILLANCE

BROWNS FERRY NUCLEAR PLANT

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-259, 260, 296

1.0 INTRODUCTION

By letter of November 20, 1985 (J. W. Huffman to D. Vassallo, Tennessee Valley Authority (TVA) (the licensee) proposed a change in the Browns Ferry Nuclear Plant Unit 1, 2, and 3 Technical Specifications. The proposed specifications would delete the requirement to check smoke detector sensitivity in accordance with the manufacturer's instructions. A request for additional information was sent to the licensee on January 13, 1987 (M. Grotenhuis to S. A. White). The licensee replied to the RAI on March 19, 1987 (R. Gridley to S. Ebnetter).

2.0 EVALUATION

The existing Surveillance Requirement 4.11.C.5 states that "smoke detector sensitivity will be checked annually in accordance with the manufacturer's instruction." The proposed modification is to delete the words in accordance with the manufacturer's instructions "from the Surveillance Requirement."

The reason for the licensee's proposed change is that these detectors which are no longer in production lack current vendor-supplied test equipment. This situation prevents strict application of the Surveillance Requirement and resulted in a violation in the case of the Fenwell Fire Alert FT 200 smoke detectors by Kidde, Inc.

The licensee presently tests the sensitivity FT 200 smoke detector in the following manner as described in Surveillance Instruction 4.2.1.3:

"Sensitivity Test (SI-4.11.C.5 only check before applying smoke source to detector.) Testing each detector, use a stopwatch to determine the flash rate (seconds/flash) of the condition indicator light on each detector. Time the detector for one minute while counting the flashes. Divide the total time in seconds by the number of flashes that occurred during that time. Calculate the flash rate to nearest 0.01 second. Record this flash rate along with the flash rate stamped on the detector mounting

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plate in the appropriate column of the data sheet as shown below. The calculated flash rate should not differ from the stamped flash rate by more than 10%."

The staff has reviewed this procedure and discussed it with representatives\* of Fenwell Inc. (the vendors). It is the staff's position that counting flashes from the detector indicator light is not a reliable means of determining detector sensitivity. In addition, the staff believes that the detectors should be replaced by newer approved detectors for the following reasons:

1. The only procedure available to test the sensitivity of the instruments appears to be inherently unreliable.
2. According to the vendor, the FT 200 detector has not been manufactured for at least 12 years. It is the vendor's opinion, and we agree, that detectors of this vintage may be prone to significant changes in sensitivity due to the long-term effects of emplacement.

### 3.0 CONCLUSION

The staff recommends that the request for revision of Surveillance Requirement 4.11.C.5 be denied.

Principal Contributor: Rex G. Wescott

\* Telecon R. Wescott to Rob Boucher, Fenwell (April 13, 1987)

