



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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO SAFETY PARAMETER DISPLAY SYSTEM

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

DOCKET NOS. 50-259, 50-260, AND 50-296

1.0 POSITION

Item I.D.2, "Plant Safety Parameter Display Console," of Task I.D., "Control Room Design," of the "NRC Action Plan Developed as a Result of the TMI-2 Accident," (NUREG-0660) states that operating reactor licensees and applicants for operating licenses will be required to install a Safety Parameter Display System (SPDS) that will display to operating personnel a minimum set of parameters which define the safety status of the plant. Supplement 1 to NUREG-0737 confirmed and clarified the SPDS requirements in NUREG-0660. Pursuant to NUREG-0737, Supplement 1, each licensee or applicant was required to submit a safety analysis describing the basis on which the selected parameters are sufficient to assess the safety status of each identified function for a wide range of events including symptoms of severe accidents. Licensees and applicants were also required to submit their specific implementation plans for SPDS.

2.0 INTRODUCTION

The staff SER dated March 6, 1991, indicated that additional actions by the Tennessee Valley Authority (TVA) for the Browns Ferry Nuclear Plant (BFN), were needed to fully meet four of the eight SPDS requirements of Supplement 1 to NUREG-0737. The four Supplement 1 for NUREG-0737 SPDS requirements not fully met were: (1) concise display; (2) minimum information; (3) rapid and reliable; and (4) incorporate accepted human factor principles.

3.0 EVALUATION

The staff's evaluation of the SPDS for BFN, Units 1, 2 and 3 is as follows:

3.1 Concise Display of Critical Plant Variables to Control Room Operators

The staff SER indicated that the licensee's containment isolation display met the requirements of Supplement 1 to NUREG-0737. However, TVA should ensure that this requirement continues to be satisfied in its decision regarding whether to provide containment isolation status on a part of the SPDS or on a separate display.

The licensee's letter dated December 17, 1991, indicated that the BFN SPDS will display primary containment isolation status data. The staff finds that this issue has been resolved and the licensee meets this requirement of Supplement 1 to NUREG-0737.

3.2 The Minimum Information Provided Shall Be Sufficient to Provide Information to Plant Operators About the Five Safety Functions Identified in Supplement 1 to NUREG-0737

The staff SE concluded that the requirement regarding minimum information about the five safety functions identified in Supplement 1 to NUREG-0737 would not be fully satisfied for a fully operational SPDS until the licensee met its commitment to provide additional critical safety function parameters.

The licensee's letter dated December 17, 1991, noted that the BFN SPDS will contain the critical safety function parameters listed in NUREG-1342 for BWRs, including drywell oxygen concentration. TVA also indicated that pre-treatment effluent monitors would be available on the Integrated Computer System which supports the SPDS function. The staff concludes that these issues have been resolved and the licensee meets this requirement of Supplement 1 to NUREG-0737.

3.3 The SPDS Should Rapidly and Reliably Aid Control Room Operators In Determining the Safety Status of the Plant

The staff SE identified several unresolved issues regarding the reliability of the BFN SPDS. These issues were described in Inspection Report 50-260/90-40 and required resolution before restart of Unit 3.

The licensee completed the required actions and these issues were closed in Inspection Report 50-260/91-10. The staff concludes that these issues are resolved and that the licensee meets this requirement of Supplement 1 to NUREG-0737.

3.4 The SPDS Shall Be Designed to Incorporate Accepted Human Factors Principles

The staff SE identified unresolved human factors design issues regarding the BFN SPDS. These issues were referenced in Inspection Report 50-260/90-40, and required resolution before restart of Unit 2.

The licensee completed the required actions and these issues were closed in Inspection Report 50-260/91-10. The staff concludes that these issues are resolved and that the licensee meets this requirement of Supplement 1 to NUREG-0737.

3.5 Conclusion

The staff concludes that TVA has satisfied the Supplement 1 to NUREG-0737 SPDS requirements for Browns Ferry Nuclear Plant Units 1, 2 and 3. The staff's technical review of the SPDS design to be implemented at each BFN unit is now complete. In order to fulfill its commitments to meet the SPDS requirements of

Supplement 1 to NUREG-0737 at BFN, TVA must (1) implement a operational, full scope SPDS for Unit 2 following startup from the next (Cycle 6) refueling outage, and for Units 1 and 3 following startup from their current extended shutdown condition, and (2) within two months after declaring each unit's SPDS operational, certify that it meets the requirements of Supplement 1 to NUREG-0737.

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