



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

ENCLOSURE

SAFETY EVALUATION REPORT BY THE OFFICE OF SPECIAL PROJECTS
IN REGARD TO VOLUME III OF THE BROWNS FERRY NUCLEAR PERFORMANCE PLAN

SECTION III.5.0 FIRE PROTECTION IMPROVEMENT

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-260

1.0 INTRODUCTION

Since the March 1975 fire, the Tennessee Valley Authority (TVA or the licensee) has improved and added to the fire protection systems on all three units. The first set of improvements was installed as part of the Fire Recovery Plan which was agreed to by TVA and NRC. The NRC issued a Restart Safety Evaluation Report in March 1976 on the fire recovery plan.

After the issuance of 10 CFR 50.48 and Appendix R to 10 CFR 50, TVA developed a plan to implement the additional requirements imposed by these regulations. TVA submitted a report entitled "10 CFR 50 Appendix R Submittal Fire Protection and Safety Shutdown Systems Analyses Report for Browns Ferry Nuclear Plant, TVA" in January 1986. Additional information was submitted in November 1986. A safety evaluation (SE) on the post-fire safe shutdown analyses is being prepared by the staff. The licensee also requested eleven exemptions, two of which have been withdrawn and another four have been changed to "Engineering Evaluations" in accordance with Generic Letter 86-10. The remaining five exemption requests are under review by the staff. The staff is planning to visit BFN for the Appendix R inspection prior to restart of Unit 2. Compliance with Appendix R is required for restart.

In addition to compliance with Appendix R, TVA has committed in its Nuclear Performance Plan for Browns Ferry to improve organization and staffing in the area of Fire Protection, to comply with National Fire Protection Association (NFPA) standards and to replace the Fire Recovery Plan with a new Fire Protection Plan. The Fire Protection Plan was submitted on April 4, 1988 as part of the Fire Protection Report.

2.0 EVALUATION

Complete evaluation of Browns Ferry Nuclear Plant (BFN) compliance with Appendix R will require the onsite compliance inspection and a review of pertinent sections of the Fire Protection Report. Issues raised by the staff during the review of the January 1986 submittal have been satisfactorily answered by TVA. Although additional questions may be forthcoming as the result of the staff's review of other sections of the detailed Fire Protection Report, responses and resolutions of these issues are not required for restart.

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In regard to compliance with Appendix R, the following modifications are presently being implemented:

1. Fire Detection (heat detectors and smoke detectors);
2. Fire suppression (automatic sprinklers);
3. Compartmentation (water curtains, wall and floor penetration seals), fire dampers, fire doors);
4. Circuit modifications [prevent spurious operation of residual heat removal (RHR) and reactor water clean-up (RWCU) valves and provide local control switches];
5. Cable modifications (Cable wrapping and rerouting to gain separation);
6. Breaker and fuse upgrade for associated circuits;
7. Addition of main steam relief valve backup air supply;
8. Battery backup power supply for communication;
9. Emergency lighting.

In addition to the presently planned modifications, a long term program has been developed to ensure continued compliance with Appendix R requirements.

Administrative improvements have included improvements in both organization and procedures. Since June 1985 there has been a Fire Protection Section on site currently staffed with a supervisor, a fire marshal, a fire protection engineer, a mechanical engineer, and appropriate engineering and craft personnel.

As a result of this reorganization, separate individuals have been assigned responsibilities for compliance, non-engineering aspects of the Fire Protection Program, and engineering aspects of the Fire Protection Program. Other organizational improvements include placing the fire protection function in the Plant Manager's organization and using the TVA Division of Nuclear Training to improve fire brigade training.

The licensee is also conducting a complete review of administrative procedures related to fire protection. A detailed review of all fire protection surveillance instructions to insure that they are technically accurate and to verify compliance with Technical Specifications is ongoing and will be completed prior to restart of Unit 2. Those procedures, particularly those dealing with transient fire loads, have been rewritten.

The licensee's program to comply with NRC guidelines and NFPA standards consists of three steps:

1. Identification of deviations from NRC guidelines and standards;
2. Evaluation of these deviations; and
3. Making appropriate modifications to bring systems into compliance with general industry practice as specified by NFPA.

Where NRC guidance differs from NFPA codes or where no significant increase in fire protection would be achieved by the changes, actions specified in Step 3 above may be excepted. Otherwise all new Appendix R related modifications to the fire protection systems are being installed in accordance with NFPA codes and NRC's Branch Technical Position (BTP) 9.5-1. The licensee has also completed a two-year engineering study of the installed fire protection systems to identify deviations with respect to NFPA standards. A summary of deviations from NFPA codes dated August 3, 1988 has been received and is being reviewed as part of the Appendix R compliance review and audit.

3.0 CONCLUSION

The goals and objectives of the Fire Protection Improvement Program as outlined in Volume III of the Nuclear Performance Plan are acceptable to the staff. The list of modifications corresponds with the requirements of Sections III.G. and J of Appendix R and the future program as proposed can be expected to meet the guidance of Standard Review Plan (NUREG-0800 - July 1981).

The licensee also responded to NRC staff questions resulting from review of the first version of the Fire Protection Improvement Program (Nuclear Performance Plan, Volume 3, Revision 0 - August 28, 1986). NRC had previously noted deficiencies to the overall fire protection program in non-safety-related areas, schedules for implementation of specific improvements, and licensee responsibilities to review and implement day-to-day operating and maintenance activities to assure adequate fire protection were provided. In the Revision 1 of the Nuclear Performance Plan (Volume 3, Revision 1, July 1, 1987), the licensee summarized their overall fire protection goals in all areas of the site and discussed their philosophy of excellence for evaluating and addressing all known weaknesses in the BFN Fire Protection Program. The licensee has also provided a description of the duties and responsibilities of key members of the fire protection unit at BFN. However, the staff has not performed an Appendix R compliance inspection at BFN (a restart item) nor has the staff completed review of the Fire Protection Program Plan for acceptance as a replacement for the Fire Recovery Plan (a post-restart item). These inspections and reviews will have to be performed before the technical aspects of the BFN Fire Protection Program can be approved by the staff.

Principal Contributor: R. Wescott

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