



Tennessee Valley Authority, P.O. Box 2000, Soddy-Daisy, Tennessee 37379

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May 14, 1992

U.S. Nuclear Regulatory Commission
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Gentlemen:

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

SEQUOYAH NUCLEAR PLANT (SQN) - FIRE PROTECTION IMPROVEMENT PLAN QUARTERLY STATUS REPORT

A working meeting between TVA and NRC was held at SQN on August 19, 1991, to discuss the self-identified problems in SQN's fire protection program and the improvement plan efforts initiated by TVA. The improvement plan consisted of a multi-phase approach to address short- and longer-term actions.

A status report was generated, following the targeted completion date for Phase I, to identify progress achieved and evaluate areas needing further action. This quarterly status report is included as Enclosure 1. Changes to the improvement plan are identified in Enclosure 2. A detailed evaluation of implementation of a number of specific Phase I actions is being conducted by the Site Quality organization. Results of this ongoing evaluation will also be incorporated into the continuing plan implementation, as appropriate.

Revisions to a number of fire protection procedures included in Phase I have not yet been completed as a result of competing priorities. Ongoing procedure revision activities will continue into Phase II.

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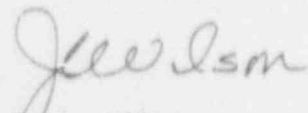
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No further actions are being tracked under Phase I. Phase II efforts have begun and are scheduled for completion by October 1, 1992, with the exception of Action 2-10. This action, which involves performance of the plant walkdown procedure to update the fire hazards analysis, is being performed in conjunction with Action 4-2, to evaluate penetration seals, in an effort to improve the overall schedule. The current schedule includes completion of Action 3-2, to issue the fire hazards analysis, and Action 4-2 during Phase III. Any changes to this schedule will be reflected in the quarterly status reports.

If you have any questions concerning this submittal, please telephone W. A. Cooper at (615) 843-8422.

Sincerely,



J. L. Wilson

Enclosures

cc (Enclosures):

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ENCLOSURE 1

FIRE PROTECTION IMPROVEMENT PLAN - STATUS REPORT PERIOD ENDING APRIL 1, 1992

- 1-1 Special Maintenance Instruction SMI-0-26-7, "Fire Hazards Analysis Walkdown Procedure," was issued on April 1, 1992. This procedure provides instructions to quantify in situ and transient combustibles. A vendor has been selected to perform this walkdown and the ensuing calculation update.

The necessity of routine field verification of the fire hazards analysis (FHA) will be evaluated and methods established as appropriate before issuance of the FHA. This action is being added to Phase III.

- 1-2 An action plan has been developed to identify required actions and completion dates to close NRC Information Notice No. 88-04, "Inadequate Qualification and Documentation of Fire Barrier Penetration Seals." A vendor has been selected to perform the required actions in order to improve the initial schedule provided in the improvement plan.

- 1-3 A review of corrective action documents (i.e., condition adverse to quality reports, significant corrective action reports, problem evaluation reports, incident investigations, finding identification reports) was conducted. Two documents were identified with compensatory fire watch patrols in place that did not have breaching permits. Required permits have been generated and will remain open until corrective actions for the specific deficiencies are implemented.

- 1-4 The document control change management system was reviewed to determine if programmatic deficiencies exist. This review concluded that the system is functioning as intended, and changes are not required.

- 1-5 The Appendix R coordinator is now notified of design review meetings. Based on the complexity of the design, the coordinator determines the level of involvement required, i.e., if attendance at the 10 percent, 50 percent, or 80 percent meetings is appropriate. The coordinator must attend the 80 percent meetings for design changes that may impact Appendix R.

- 1-6 Hydraulic performance evaluations have been completed for the high-pressure fire protection system. Pressures and flows for sprinkler systems servicing safety-related areas have been evaluated using the projected 40-year pipe degradation, where applicable. Areas specifically calculated were plotted to provide flow curves in order to trend system performance. As a result of these calculations, incorporating alert values into procedures will be addressed in Action 2-12. Results of these calculations indicate acceptable flows except for the diesel generator building roof hose stations. As demonstrated by December 1991 testing, this area currently exceeds required flow by approximately 20 percent; therefore, these results are not of immediate concern. Long-term corrective action is being evaluated.

The minimum flow demands back to the pump have been evaluated for safety-related areas utilizing the most hydraulically limiting impairment. Results indicate that sufficient flow is available for each valve.

The system has also been evaluated to ensure that overpressure conditions have not resulted in unacceptable operation. The replacement of the fire pumps will also implement long-term correction for this concern.

Calculations performed to implement this commitment were reviewed by a member of the Society of Fire Protection Engineers, who is a registered professional engineer in the state of Tennessee.

- 1-7 The new fire detection central alarm system has been installed and tested. Human factors, including volume control, have been incorporated. The system is operating very well.
- 1-8 The review process for fire protection requirements in design change packages has been enhanced. Training has been conducted for design change package preparers to ensure that Appendix R is considered in the design and to provide an overall familiarization with fire protection as a whole. If preliminary review indicates that fire protection is affected, the fire protection coordinator reviews the package. The discipline lead engineers are responsible for ensuring that compliance is maintained and proper reviews are received.
- 1-9 Functional responsibilities have been identified for the fire protection coordinator, the Nuclear Engineering (NE) fire protection system engineer, electrical design engineers, civil design engineers, and mechanical design engineers, relative to fire protection.
- 1-10 NE has developed a fire protection training program for individuals involved in the day-to-day activities associated with fire protection. This training consists of six modules (each presented twice annually) as follows:
 - Module 1 - Technical Support/Licensing basis
 - Module 2 - Fire suppression systems
 - Module 3 - Fire containment/compartimentation
 - Module 4 - Fire detection
 - Module 5 - Flammable/combustible materials and FHA
 - Module 6 - MiscellaneousAdditionally, training was conducted for NE personnel preparing design changes as discussed in Action 1-8 above.
- 1-11 Calculations SQN-APPR-1 and SQN-APPR-2 have been revised.

1-12 A training plan has been developed for Fire Operations personnel and fire brigade members, which includes six days of instruction in fire protection systems. Detection, high pressure fire protection, carbon dioxide, and fog and sprinkler systems are included in this training. This training is being conducted on a recurrent basis.

1-13 The primary and alternate system engineers for Fire Protection Systems 13, 26, and 39 will be added to the training files maintained by the Fire Protection instructor to annually provide and document training. Additionally, a training memo will be sent to all Technical Support engineers describing the latest revision to SSP-12.15.

Training developed for NE personnel is discussed in Action 1-10.

14 Site general employee training now adequately covers fire-protection-related areas. Precautions associated with carbon dioxide use, compartmentation, and control of combustible materials are covered in sufficient detail to convey personnel responsibilities in these areas.

1-15 The permit process has been revised and is covered by SSP-12.15. Requirements for both active and passive impairments are delineated in the SSP. Based on outage implementation lessons learned, additional enhancements will be incorporated.

1-16 SSP-12.15, Revision 0, was issued February 13, 1992, to replace Physical Security Instruction 13, "Fire Protection Program." Administrative Instruction 15, "Torch Cutting, Welding, Open Flame, Grinding, and Spark Producing Work Permit," was incorporated into this procedure. However, SQN determined that changing the responsibility for permit authorization to Fire Operations was not warranted; this responsibility will be maintained by the responsible general foreman.

Specific requirements to be evaluated for impairments are delineated in the procedure. Combining the permits for impairments was evaluated and determined to not be an effective method of control, based on human factors considerations. The procedure also contains lists of areas containing Appendix R wraps, special Appendix R areas, and safety-related areas to aid in appropriate evaluation of impairments.

1-17 Procedure revisions are ongoing. Procedures receive a review by the system engineer and/or Fire Protection engineer following each performance for technical accuracy and noted procedural deficiencies. A task team made up of the fire protection systems engineers is performing a technical review to ensure that the procedures are reviewed for technical inadequacies and that revisions are initiated. A total of 152 procedures have been

identified as affecting fire protection. Of these, 28 have been revised to date. Revisions are in process on 75, and 49 remain to be reviewed.

- 1-18 Prefire plans were revised in February 1991 to reflect the current organization, capabilities, and tactics. The prefire plans are currently in revision to incorporate the procedures into a "Prefire Plan Manual" and to add and clarify information. This will be accomplished as part of Phase II.
- 1-19 As delineated in SSP-6.21, "Maintenance Management System Initiation of Work Requests," the Fire Protection engineer is notified of work requests involving Fire Protection for review of priority and accuracy. Workplans are reviewed by the Fire Protection engineer before approval to ensure that Fire Protection aspects are appropriately addressed.
- 1-20 Surveillance Instructions (SIs) 167 and 654 have been revised to include valves required by technical specifications (TS) in O-SI-FPU-026-167.M, "Fire Header Valve Lineup Inspection," which replaced SI-167, "Fire Header Valve Lineup Inspection"; and non-TS valves in O-PT-FPO-026-654.M, "Fire Header Valve Seal Inspection," which replaced SI-654, "Fire Header Valve Seals Inspection." During the review of the implementation of this action, an administrative inadequacy was identified in the procedures that will require further revision. This action will be included as part of the procedure revision effort discussed in Action 1-17.
- 1-21 System Operating Instruction (SOI) O-SO-26-1, Revision 5, "High Pressure Fire Protection," was issued on April 1, 1992, to include steps to promptly drain the fire protection system following an inadvertent actuation. Additional human performance enhancements are also being incorporated.
- 1-22 As discussed in the previous quarterly status report, because of the favorable results obtained during the system performance test, further mechanical cleaning of the high-pressure fire protection system is not warranted at this time. Data from the performance test will be trended to ensure that performance is acceptable and to recommend further cleaning, if required.
- 1-23 A test was performed by Telecommunications to determine the extent of the condition of "dead spots" at SQN. It was determined that the new Motorola Sabre radios would work properly with no dead spots identified, if the batteries for the radios were charged and discharged fully. Operations has ordered the discharge equipment and is in the process of instructing plant personnel on their proper use to ensure adequate radio coverage.

In parallel, TVA is in the process of finalizing the design for a new repeater system at SQN, which will add a fourth frequency. The schedule for implementation has not been finalized, but initial projections are for implementation during fiscal year 1993. Additional information will be tracked and prioritized by site personnel to ensure the communications system at SQN meets the requirements.

- 1-24 Training for fire brigade members has been developed. Implementation of the training was started in January 1992 and will continue throughout the calendar year. SQN determined that immediate training for fire brigade members was not necessary. A modular format to convey required information will be utilized and will be adjusted on a yearly basis as needs evolve.
- 1-25 SOI O-SO-26-1; SI-122, "High Pressure Fire Protection System Yard Hydraulic Performance Verification"; and the former SI-180, "Fire Pump Start Test," contain the required steps to ensure that plant personnel are aware of the requirement to have two of the three pressure control valves in service while operating the fire pumps. SI O-SI-SFT-026-002.0, "Auxiliary Building Fire Protection System Hydraulic Performance Verification," and the SI-73 series will be revised to include this requirement before the next performance. These actions will be included as part of the procedure upgrade effort discussed in Action 1-17.
- 1-26 SSP-12.15 provides instructions for evaluating impairments and determining compensatory measures. In addition to the table listing areas containing Appendix R wraps that provide one-hour separation as discussed in Action 1-16 above, tables have been provided for special Appendix R areas and safety-related areas to aid in impairment evaluation.
- 1-27 II-S-91-029:
A walkdown of the fire-suppressor sprinkler system was performed, and discrepancies between plant configuration and drawings were reconciled by drawing deviations. Enhancements to the SI-241 series will be incorporated as a result of these walkdowns. These actions will be included as part of the procedure upgrade effort discussed in Action 1-17.
- II-S-91-041:
Walkdowns of the control and auxiliary building nonpoured masonry walls have been completed, and it was concluded that the fire barriers inspected demonstrate the requirements of functional barriers.

II-S-91-049:

Training regarding the control of transient fire loads is included in general employee training. The procedure for controlling transient fire loads is now included in SSP-12.15.

II-S-91-055:

The procedures for fire barrier inspections have been revised. A prerequisite to ensure that inspectors have been trained on fire barrier requirements is included in the revised procedure.

- 1-28 Qualified personnel performing maintenance activities for fire protection attributes can be mobilized to ensure compliance with TS requirements. For this reason, the capability to perform maintenance on fire protection features is adequate.
- 1-29 SMI-0-317-18, Revision 3, "Appendix R - Casualty Procedures," was issued March 30, 1992, and identifies the location and tagging of material required for performance of the instruction. It also states that this material will be inventoried on an annual basis. A preventive maintenance instruction has been issued to perform this inventory.
- 1-30 The study for Project Control No. 607 to upgrade the fire suppression system has been completed. The current schedule reflects initiation and issuance of the design package in fiscal year 1993. An action is being added in Phase III to track the design issuance.
- 1-31 American Nuclear Insurers Fire/All Risk recommendations have been evaluated and prioritized. A recommended implementation sequence has been developed. SQN is now insured by Nuclear Mutual Limited; their recommendations are being evaluated.
- 1-32 Audits and assessments of improvement plan action implementation and effectiveness are being established throughout plan implementation. Long-term audits of the fire protection program will be accomplished in accordance with TS requirements and as deemed appropriate by the Fire Protection manager, site management, and Site Quality.

ENCLOSURE 2

ACTION ADDITIONS OR CHANGES TO UPCOMING PHASES

Phase II

- 2-13 Revise prefire plans into Prefire Plan Manual to add and clarify information.
- 2-17 Complete remaining procedure reviews.
- 2-18 Evaluate flows at diesel generator building hose stations and determine corrective action.

Phase III

- 3-5 Perform the plant walkdown procedure to update the fire hazards analysis (FHA) (replaces Action 2-10).
- 3-6 Evaluate the necessity of field verification of the FHA and establish methods as appropriate before issuance of the FHA.
- 3-7 Issue a design package for Project Control No. 607, Fire Suppression System Upgrade.
- 3-8 Complete evaluation of the mechanical and electrical fire barrier penetration seals in accordance with the guidelines in Information Notice No. 88-04 (replaces Action 4-2).