

SUPPLEMENT NO. 1  
TO THE  
FIRE PROTECTION  
SAFETY EVALUATION REPORT  
BY THE  
OFFICE OF NUCLEAR REACTOR REGULATION  
U. S. NUCLEAR REGULATORY COMMISSION  
IN THE MATTER OF  
YANKEE ATOMIC ELECTRIC COMPANY  
YANKEE ROWE  
DOCKET NO. 50-29

Dated: October 1, 1980

Original Issue: March 15, 1979

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## 1.0 INTRODUCTION

By letter dated March 15, 1979, the Commission issued Amendment No. 56 to Facility Operating License No. DPR-3 for the Yankee Nuclear Power Station (Yankee Rowe). The safety evaluation report issued in support of this amendment noted several open items which remained to be resolved by the licensee before the Commission could determine that the licensee's fire protection program is acceptable. This supplement to that safety evaluation discusses these open items and the proposals made by the licensee to resolve them.

## 2.0 EVALUATION OF OPEN ITEMS FROM SECTION 3 OF THE FIRE PROTECTION SAFETY EVALUATION (FPSE AMENDMENT NO. 56 DATED MARCH 15, 1979)

### 2.1 FIRE DETECTION, SECTION 3.1.1

By letter dated May 27, 1980, the licensee provided information regarding our request for installation of fire detectors inside of containment. The fire detectors will alarm in the control room. The licensee has proposed to install lineal fire detectors prior to November 1, 1980, which meets our implementation date.

Based on our evaluation, we conclude that the licensee's proposal to install fire detectors inside of containment meets our fire protection guidelines and is, therefore, acceptable.

### 2.2 WATER SUPPRESSION SYSTEM, SECTION 3.1.5

By letter dated May 27, 1980, the licensee committed to design changes requested by us for the sprinkler system. The licensee committed to make our requested changes to the diesel room, hydrogen seal oil unit, turbine building sprinkler systems and sprinkler systems for the auxiliary boiler room (per details provided by letter dated July 2, 1979). These changes included the installation of separate water supply connections, isolation valves, quarter turn fire protection valves in conjunction with reach rods for remote actuation capability, and separate water supply connections for hose stations. The licensee proposes to install these changes by November 1, 1980, which meet our implementation dates.

Based on our evaluation, we conclude that the licensee's design changes meet our fire protection guidelines and are, therefore, acceptable.

### 2.3 FOAM SUPPRESSION SYSTEM, SECTION 3.1.6

By letter dated May 27, 1980, the licensee provided information regarding the installation of the turbine lube oil foam fire suppression. The licensee proposes to use 3% fluoroprotein with the area covered by six nozzles. The systems design will conform to NFPA standard No. 16. The schedule implementation date is prior to November 1, 1980, which meets our implementation date.

Based on our evaluation, we conclude that the foam fire suppression meets our fire protection guidelines, and is, therefore, acceptable.

2.4 GAS SUPPRESSION SYSTEM, SECTION 3.1.7

By letter dated May 27, 1980, the licensee provided information regarding the activation method for the gas fire suppression system for the switchgear room.. The gas suppression will be activated by a cross-zoned, ionization smoke detection system. The licensee has committed to an implementation date of November 1, 1980, which meets our implementation date.

Based on our evaluation, we conclude that the proposed cross-zoned, ionization smoke detection system meets our fire protection guidelines and is, therefore, acceptable.

2.5 CONTROL OF COMBUSTIBLES, SECTION 3.1.12

By letter dated May 27, 1980, the licensee provided information on the control of an oil leak in the diesel fuel oil line. The licensee proposes to install a curb around the area and to install partitions that will confine any oil line leak or spray. The oil will drain to a collection tank that is vented and equipped with a level alarm that annunciates in the control room. The licensee also proposes to install one hour fire resistant coating to the steel beams in the diesel generator rooms. The scheduled implementation date is prior to November 1, 1980, which meets our implementation date.

Based on our evaluation, we conclude that the oil drainage system, the partitions, tank alarms, and fire resistive coatings meets our fire protection guidelines and is, therefore, acceptable.

2.6 SMOKE DETECTION SYSTEM, SECTION 3.2.1

In our SER, we requested that the licensee perform both an in situ and bench smoke detector test. By letter dated May 27, 1980, the licensee stated, in response to our requirement for smoke detector bench tests, that the detector type used in his facility is identical to that used in Vermont Yankee and Maine Yankee. These detectors were bench tested by using materials such as clothing, plastic and cable materials. These test results were accepted by the NRC and the tests indicated that the detectors have adequate sensitivity sufficient to give prompt response. We agree that the Yankee Rowe smoke detectors are similar to those used in Vermont Yankee and Maine Yankee facilities and that the tests are also applicable to Yankee Rowe. Therefore, additional tests are not needed.

In response to our requirement for an in situ smoke detection test, the licensee stated that the required methodology for the in situ tests is beyond the current state-of-the-art, and, therefore, the tests cannot be performed at this time. We agree that the in situ smoke detector test is not now possible with the current state-of-the-art technology. We are of the opinion that with acceptable bench testing of smoke detectors and considering state-of-the-art technology the in situ tests are not required.

2.7 FIRE WATER SUPPLY, SECTION 3.2.2

By letter dated May 27, 1980, the licensee provided information regarding their fire protection water supply. In the SER, we requested that the fire protection water supply be increased in terms of its pumping capability and water supply. The licensee proposes to provide a new 2,000 gpm, diesel driven fire pump with its own pump house, supplied from a new 350,000 gallon water supply tank. The fire pump will conform to NFPA Standard No. 20. The scheduled implementation date is prior to November 1, 1980, which meets our implementation date.

Based on our evaluation, we conclude that the licensee's proposal to install a new fire pump with a separate water supply meets our fire protection guidelines and is, therefore, acceptable.

2.8 DEDICATED SHUTDOWN, SECTION 3.2.3

By letter dated May 27, 1980, the licensee stated that the safe shutdown re-analysis for Yankee Rowe and the issue of a dedicated shutdown system would be deferred to the Systematic Evaluation Program (SEP). We are of the opinion that a dedicated shutdown system should be provided. This determination is based solely upon our fire protection review. However, other aspects of the facility currently under review in the SEP may also require a dedicated shutdown system, and the Commission has recently published for comment a proposed rule on fire protection which would require that a dedicated shutdown capability be implemented prior to October 1, 1982. As a result, the licensee's proposal to defer the implementation of this requirement to the SEP is not acceptable. The licensee has been requested by the letter forwarding this evaluation to provide plans and schedules that would meet the schedules given in the proposed rule.

3.0 EVALUATION OF ADMINISTRATIVE CONTROLS - SECTION 6 OF THE FIRE PROTECTION SAFETY EVALUATION (FPSE AMENDMENT NO. 56 DATED MARCH 15, 1979)

3.1 ADMINISTRATIVE CONTROLS, SECTION 6.0

The administrative controls for fire protection consist of the fire brigade training, controls over combustibles and ignition sources, prefire plans to procedures for fighting fires, and quality assurance provisions for fire protection.

The licensee has provided a description of the elements of his administrative controls for fire protection, as detailed in the following sections.

3.2 ORGANIZATION, SECTION 6.1

The licensee's fire protection organization contains the organization's responsibilities and lines of communication between the various positions involved in the fire protection program, the qualification requirements of key positions in the fire protection program, and the composition of the fire brigade. The fire protection organization contains positions extending from

the Assistant Vice President of Operations to the Fire Protection Coordinator. These management and staff positions are responsible for formulation, implementation and assessment of the fire protection program. The licensee has described the organizational responsibilities for inspection, training, review of design changes, review of proposed work activities and station documents that define these and other responsibilities as related to plant fire protection.

The licensee has described the qualification requirements that have been established for the positions responsible for formulating and implementing the fire protection program, training instructions, and for service in the fire brigade. In addition to the training requirements, the licensee has established minimum physical qualification requirements for service in the fire brigade as well as satisfactory completion of an annual medical/physical examination for performing strenuous activity.

A fire brigade of at least 5 members will be maintained on site at all times. However, the licensee has stated the Shift Supervisor will be the leader of the fire brigade. It is our opinion that the Shift Supervisor should not be a member of the fire brigade because his presence may be necessary elsewhere if the fire occurs in certain critical areas of the plant. The brigade leader should not have other responsibilities that would distract him from his full attention being devoted to the fire. His total function should be to survey the fire area, command the brigade and keep upper level management informed. We, therefore, conclude that this proposed use of the Shift Supervisor as fire brigade leader is unacceptable.

With this exception, we find that the licensee's fire protection organization satisfies the objectives identified in Section 2.0 of the FPSE and is, therefore, acceptable.

### 3.3 FIRE BRIGADE TRAINING, SECTION 6.2

The fire brigade training program consists of classroom instructions, practice in fire fighting and fire brigade drills. The classroom instruction is provided on a quarterly basis and is designed to repeat the classroom instruction over a two-year period. The classroom instruction consists of types of fires that may occur in a power plant and a particular hazards, reporting of fires, maintenance and use of fire fighting equipment, fire chemistry and fire fighting strategies and techniques.

The licensee proposes to conduct two drills in conjunction with the classroom instructions in addition to the two annual drills presently scheduled for a total of four (4) drills per year per brigade member. The brigade member is permitted to miss one drill per year but must review and critique the drill missed.

3.3 FIRE BRIGADE TRAINING, SECTION 6.2 (CONT'D.)

We find that, subject to implementation of the above described changes, the fire brigade training program satisfies the objectives identified in Section 2.0 of the FPSE and is, therefore, acceptable.

3.4 CONTROL OF COMBUSTIBLES, SECTION 6.3

Administrative controls have been established to control bulk storage of combustibles in areas containing systems or equipment required for safe shutdown. These controls include: housekeeping procedures; periodic inspections to determine the effectiveness of housekeeping practices, procedures and guidelines for use and storage of flammable, and/or volatile materials; and a review of maintenance requests and modifications for special fire protection requirements. The licensee proposes to revise the existing procedures to include all areas of the facility.

The licensee does not plan on using fire retardant wood. The licensee proposes implementing a program which controls the use of wood in safety related areas and to provide the necessary level of protection to insure the wood introduced into the plant will not cause an unacceptable increase in fire hazards to safety related areas.

We find that, subject to implementation of the above described changes, the program established to control combustible materials in the plant satisfies the objectives identified in Section 2.0 of the FPSE and is, therefore, acceptable.

3.5 CONTROL OF IGNITION SOURCES, SECTION 6.4

Administrative controls have been established to protect safety related equipment from fire damage or loss resulting from work involving ignition sources. These controls include station procedures which require a work permit to perform welding or open flame cutting operations; a fire watch and control room communication when there is a potential for a fire that might damage safety related equipment. Administrative controls have been established to prohibit smoking in safety related areas and in other plant areas containing major fire hazards.

We find that the licensee's procedures for control of ignition sources in the plant satisfy the objectives identified in Section 2.0 of the FPSE and are, therefore, acceptable.

3.6 FIRE FIGHTING PROCEDURES, SECTION 6.5

The licensee proposes to start development of prefire strategies and to integrate them into the Fire Brigade Training Program. The prefire strategies are to be used as training aids and as part of the fire drill format. The purpose being to familiarize the fire brigade, and the off-site assistance, with those areas where special precautions must be taken and where fire fighting will be most difficult.

3.6 FIRE FIGHTING PROCEDURES, SECTION 6.5 (CONT'D.)

Off-site fire fighting capability is provided by Volunteer Fire Departments on an agreement basis and as part of the area fire mutual aid.

Command authority for fire fighting at the plant site rests with the plant fire brigade leader. This is clearly understood by both volunteer fire departments.

We find that, subject to implementation of the changes described above, the licensee's program for fire fighting procedures satisfies the objective identified in Section 2.0 of the FPSE and is, therefore, acceptable.

3.7 QUALITY ASSURANCE, SECTION 6.6

The existing QA program under 10 CFR 50, Appendix B, will be implemented to provide the level of quality assurance and administrative controls for the Fire Protection Program delineated in Appendix A of BTP 9.5-1. The program will include: Design Control, Instructions, Procedures, Procurement, Inspection, Test, Nonconforming Items, Corrective Action, Records and Audits.

We find that, subject to implementation of the changes described above, the QA program satisfies the objectives identified in Section 2.0 of the FPSE and is, therefore, acceptable.

4.0 CONCLUSION

We have determined that the Fire Protection Program for Yankee Rowe, with the improvements already made, is adequate at the present time and, with the scheduled modifications, will meet the guidelines contained in Appendix A to BTP ASB 9.5-1 and General Design Criterion 3. We, therefore, conclude that this Fire Protection Program, with the exception of the implementation date for Item 3.2.3 Dedicated Shutdown Capability, and the proposed use of the Shift Supervisor as the Fire Brigade Leader, is acceptable.