

YANKEE ATOMIC ELECTRIC COMPANY



20 Turnpike Road Westborough, Massachusetts 01581

July 2, 1979

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: D. L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

- References:
- (a) License No. DPR-3, (Docket No. 50-29)
 - (b) USNRC letter to YAEC dated March 15, 1979,
Subject: Amendment No. 56 to Facility Operating License
 - (c) YAEC letter WYR 79-45 to DOR dated April 10, 1979,
Subject: Submittal Schedule

Dear Sir:

Subject: Information for NRC Review

Reference (c) above transmitted to you a schedule for submittal of design information on Yankee Rowe fire protection systems. The conceptual design has been done on most of the systems, and the information is contained in this letter.

SER Paragraph 3.1.1, a means of detecting fires in the containment.

This subject is still under study, due to the location and complexity of design. Once a decision has been made, the information will be sent for your review.

SER Paragraph 3.1.5, Water Suppression Systems

Diesel Generator Room Protection

A dry pipe sprinkler system will be installed in each diesel generator room. The system will be manually actuated from a valve station outside each room. Each sprinkler will be capable of providing a spray density of .3 gpm/sq. ft. Nozzles will be of the standard upright type and thermally activated at 212°F. A strainer is to be installed in the common feedline to the sprinkler systems.

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A single 75' hose station will be installed in the building housing the diesel generators. The hose station is accessible from an outside door and is sized in accordance with NFFA No. 14-1976 to provide Class II service.

Water supplies will be provided to the hose station and sprinkler systems from two widely separated locations on the yard fire main, each with isolation capability.

Hydrogen Seal Oil Unit and Transformer Oil Cooler Protection

An automatically initiated deluge system will provide suppression capability for the seal oil and transformer oil cooler area. This system will consist of the existing open head nozzles supplied by a piping network and an automatically operated deluge valve. A series of detectors located in the protected areas shall be connected so that an oil or hydrogen fire activating any two detectors will cause the deluge valve to open. Manual actuation will also be provided. Alarms indicating system operation will be provided.

Turbine Building Sprinkler System

The turbine building sprinkler system will be modified and will consist of thermally actuated sprinkler heads supplied from a continuously pressurized piping network. The sprinkler coverage will be increased and will include the area under the switchgear room which contains the steam generator feed pumps and the air compressors.

The open head nozzles previously used to cover special hazards (turbine lube oil tank and transformer oil coolers) will be supplied from a different source described elsewhere. Area sprinkler will also cover these special hazards.

Thermally actuated spray nozzles will be installed to cool and protect the turbine building columns adjacent to the control room/switchgear room area.

Auxiliary Boiler Room Protection

An automatically initiated sprinkler system will be installed in the auxiliary boiler room to provide suppression capability to the entire area with an average spray density of 0.3 gpm per square foot.

SEP Paragraph 3.1.6 Turbine Lube Oil Reservoir Protection

The turbine lube oil reservoir will be provided with two modifications to reduce its potential fire hazard.

1. The lube oil tank will be enclosed with a wall. The enclosed area will provide sufficient free volume to contain the entire contents of the turbine lube oil system with an additional 10% volume for fire suppression agents.

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2. An automatically actuated foam deluge system will be installed to blanket the lube oil tank and the area enclosed by the wall described above. A fire detection system located above the lube oil storage tank will actuate the foam system and sound appropriate alarms. A timing device will be included which will allow sufficient foam flow for fire suppression but limit the amount to prevent overflowing the containing wall.

SER Paragraph 3.1.7, Gas Suppression Systems

Halon 1301 Suppression

An automatic fixed Halon 1301 suppression system will be installed in the switchgear room. The system will be designed in accordance with NFPA 12A, and will include both a detection and extinguishing system. The detection will be designed in a cross-zoned or similar arrangement. The first detector actuation will initiate necessary damper closures and fan cut-offs, and alarm in the the control room. The second detector actuation will cause a release of the Halon suppressant. The extinguishing system will provide a high speed release of Halon 1301, and will totally flood the switchgear room. A uniform extinguishing concentration will be created inside the room. The concentration, amount of agent and time for which the concentration will be maintained will be based upon the size of the room, ambient temperature, and concentration required to extinguish or inert the particular fuel involved. This data will be developed during the detailed design phase of this system.

SER Paragraph 3.1.12, Modifications Outside the Diesel Generator Rooms

There are three modifications to be made. They are:

1. Spray Shield: A spray shield will be added south of the D/G fuel oil supply line. This shield, made of a fire retardant plastic, will be hung from the roof within the diesel generator building and run east to west in front of the fuel oil line. The shield will be cut and fitted around existing pipe and conduits, with any cuts or holes repaired with the same material fastened in such a manner that an oil spray will not bypass the shield. The shield will be fashioned so that any fuel oil leak will hit the shield and drain to within the moat in front of the diesel generator cubicles.
2. Oil Curb: A 4" high curb will be added in front of the diesel generator cubicles. The moat will serve two purposes; the first is to collect any oil which drains off the spray shield in case of a pipe break; the second is to prevent any fuel oil from going further within the safety injection pump room and possibly affecting the 480 V switchgear and the safety injection pumps.

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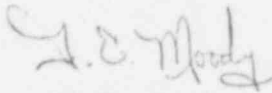
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3. Moat Draining System: A drainage system will be added within the moat. This system will drain to the oil receiving tank, which has level indication and alarm, outside the safety injection building. The piping will have a backwater valve to prevent diesel fuel oil from flowing back up the piping if the tank was to fill from the drains in each diesel cubicle.

We trust that the above information is adequate for your review at this time. Due to schedular commitments, detailed design and procurement will be progressing during your review. Therefore, if you have any questions or comments, please pass them on to us as soon as possible.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY



D. E. Moody
Manager of Operations

EAS/dmp

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