

YANKEE ATOMIC ELECTRIC COMPANY



20 Turnpike Road Westborough, Massachusetts 01581

August 22, 1978

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

Attention: Office of Nuclear Reactor Regulation
Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

References: (a) License No. DPR-3 (Docket No. 50-29)
(b) USNRC letter from D. L. Ziemann to
R. H. Groce, dated June 29, 1978

Dear Sir:

Subject: Staff Positions on Fire Protection

Reference (b) above transmitted four Staff Positions dealing with fire protection at Yankee Rowe. We have reviewed these positions and our comments follow here.

PF-1 Fire Door Supervision

Fire doors to safety-related areas or areas posing a fire hazard to safety-related areas should be normally closed and locked or electrically supervised with delayed alarm and annunciation in the control room.

Response PF-1

We accept the position for areas containing equipment required for safe shutdown.

PF-2 Electrical Cable Penetration Qualification

The cable penetration fire barriers should be tested to demonstrate a three-hour rating.

The test should be performed or witnessed by a representative of a qualified independent testing laboratory, and should include the following:

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- (1) The tests should be performed in accordance with ASTM E-119 and the following conditions.
- (2) The cables used in the test should include the cable insulation materials used in the facility.
- (3) The test sample should be representative of the worst case configuration of cable loading, cable tray arrangement, anchoring and penetration fire barrier size and design. The test sample should also be representative of the cable sizes in the facility. Testing of the penetration fire barrier in the floor configuration will qualify the fire stop for use in the wall configuration also.
- (4) Cables penetrating the fire barrier should extend at least three feet on the unexposed side and at least one foot on the exposed side.
- (5) The fire barrier should be tested in both directions unless the fire barrier is symmetrical.
- (6) The fire barrier should be tested with a pressure differential across it that is equivalent to the maximum pressure differential a fire barrier in the plant is expected to experience.
- (7) The temperature levels of the cable insulation, cable conductor, cable tray, conduit, and fire stop material should be recorded for the unexposed side of the fire barrier.
- (8) Acceptance Criteria - The test is successful if:
 - (a) The cable penetration fire barrier has withstood the fire endurance test without passage of flame or ignition of cables on the unexposed side for a period of three hours, and
 - (b) The temperature levels recorded for the unexposed side are analyzed and demonstrate that the maximum temperature is sufficiently below the cable insulation ignition temperature, and
 - (c) The fire barrier remains intact and does not allow projection of water beyond the unexposed surface during the hose stream test.

If previous tests can be shown to meet the above position, the

licensee should provide the results of the tests to show that the above position is met.

Response PF-2

We do not intend to meet this position. Yankee Rowe will be sealing all cable penetrations through fire barriers with a system that will have been thoroughly tested to demonstrate a rating of three hours using the ASTM E-119 test. While none of the tests will have used the exact Yankee Rowe cable construction or concentrations, we feel that enough tests have been done using different types of thermoplastic insulations and jackets to know that the cable penetration seal that we plan to use will work. The cable penetration fire barriers to be installed will have been tested previously by the supplier with penetration configurations similar to those at Yankee Rowe. They will be installed to provide a rating of three hours or the rating of the barrier, whichever is smaller. However, we do not intend to re-test the system using Yankee Rowe cables and loadings.

PF-3 Smoke Detection Systems Tests

In situ tests should be conducted with a suitable smoke generation device to verify that the products of combustion from a fire would be promptly detected by installed smoke detectors and that ventilation air flow pattern in the area do not significantly reduce or prevent detection response. Bench tests should be conducted to verify that smoke detectors will provide prompt response and have adequate sensitivity to the products of combustion for the combustibles in the area where smoke detectors are installed. If any fire detection systems are found to be inadequate, appropriate modifications should be made to provide adequate detection system performance.

Response PF-3

As was discussed and made evident to all at a meeting held on July 28, 1978 with the NRC, suitable smoke generation materials for conducting in-situ test of installed smoke detectors do not exist at this time. Until such methods and materials are developed, Yankee Rowe cannot conduct such a test. The design and installation specifications for new smoke detectors or detection systems in the plant will require bench testing of those detectors to verify prompt response and adequate sensitivity to the combustibles in the area where such detectors are to be installed. Please review our submittal of January 31, 1977 to see where such modifications are to be made.

PF-4 Battery Room Ventilation Air Flow Monitor

If not presently provided, a ventilation air flow monitor should be installed in each of the station battery rooms to alarm and annunciate, in the control room, the loss of ventilation air flow.

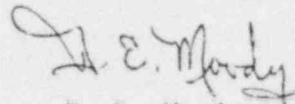
Response PF-4

As noted in our January 31, 1977 submittal to you, the two battery rooms presently exhaust via a fan through dampers equipped with fusible links. This area was reviewed by our fire protection consultants, and they felt at that time there was no need for air flow monitors. We have reviewed the situation and arrangement of the fan and damper, and feel there is no need for a monitor. Therefore, we do not intend to add any.

It should be noted that your four positions were based upon your initial review of our Fire Hazard Analysis, without the benefit of a site visit. It would seem to us to be more effective if further positions are held until a site visit has confirmed the need for the issuance of these positions. In that manner, we could avoid a constant flow of paper back and forth between us. We trust that the above meets with your approval.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY



D. E. Moody
Manager of Operations

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LTR CONCERNING STAFF POSITIONS DEALING WITH FIRE PROTECTION of SUBJECT FACILITY.

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