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

October 7, 1980

Docket No. 50-293
TAC #11077

Mr. A. Victor Morisi
Boston Edison Company
M/C NUCLEAR
800 Boylston Street
Boston, Massachusetts 02199

Dear Mr. Morisi:

Enclosed is a safety evaluation on the remaining open items of Amendment 35 (to DPR-35, Fire Protection). We have discussed the results of this evaluation with your staff (telecon Williams/Keys, October 2, 1980) and determined that additional information is required to complete the resolution of items 3.2.4 and 3.1.19. Therefore, these items have been deleted from this evaluation. BECo also stated that all items of Tables 3.1 and 3.2 of our December 21, 1978 letter, with the exception of 3.1.2, 3.1.18, 3.1.19, 3.2.1, 3.2.4 and 3.2.7 are completed and that item 3.1.2 would be completed by October 20, 1980. Items 3.1.18, 3.2.1 and 3.2.7 are under NRC review. It was noted during our discussion that item 3.1.9 (Fire Barriers) had not been addressed. This item is now considered acceptable and is addressed in the safety evaluation.

You are requested to provide us with the additional information regarding items 3.1.19 and 3.2.4 as soon as possible. The proposed resolution of these items should include a tentative schedule for completion of installation (3.1.19) or testing (3.2.4). A basis for continued interim operation should be included for those items which will exceed the deadlines imposed by Amendment 35.

Sincerely,

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosure:
Safety Evaluation

cc w/enclosure:
See next page

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

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ENCLOSURE 1

CHEMICAL ENGINEERING BRANCH/FIRE PROTECTION SECTION
ADDITIONAL FIRE PROTECTION INFORMATION REVIEW
PILGRIM NUCLEAR POWER STATION, UNIT NO. 1
DOCKET NO. 50-293

Exposed Steel Protection, Section 3.1.14

In the Fire Protection SER the concern was that unprotected steel structural members in many areas of the plant were not protected adequately, and could fail if exposed to the effects of fires. Such failure and structural collapse could affect the availability of safe shutdown systems.

By letters dated March 14, July 6, 1979 and September 11, 1980 the licensee proposed to provide three-hour rated fire protection for exposed structural steel in the needed areas of the plant. These areas include the recirculating pump motor-generator set room on elevation 51 feet, the cable spreading room, switchgear rooms A and B, and major parts of the reactor building open areas on elevation 23 feet. The licensee proposed to apply a fireproofing material in accordance with basic designs shown by UL tests to provide three-hour rated fire resistance for beams and columns.

We find that the licensee's proposal to protect the structural steel in the proposed manner will provide adequate protection for the steel to prevent structural collapse from a fire and is, therefore, acceptable.

Self-Contained Breathing Apparatus, Section 3.1.16

In the Fire Protection SER the concern was that insufficient reserve air supply was provided for the self-contained emergency breathing apparatus.

By letters dated July 6, 1979 and September 11, 1980, the licensee stated that the cascade air filling system has four (4) ASME Receivers in conjunction with the air compressor. With the compressor running, Storage Receivers are refilled as air is drawn from them providing completely filled Receivers at all times. One bottle can be filled in 4-5 minutes from each charging whip to a total of four bottles at one time. The licensee stated that they have presently on site at least 20 spare bottles which provide ten men with two spare bottles each (30 min. capacity per bottle).

We find that the licensee's self-contained breathing apparatus and reserve air supply meet the guidelines of Section D.4(h) of Appendix A to BTP 9.5-1 and is, therefore, acceptable.

Communication Systems, Section 3.1.17

In the Fire Protection SER the concern was that portable radio communications for fire brigade use during fire fighting were not adequate.

By letter dated September 11, 1980, the licensee stated that the in-plant antenna communication system is capable of communicating between the Transmitter/Receiver and the Base Radio Station (located in the guardhouse) and portable

units in all areas of the plant including the Control Room and containment. The physical routing of the communication antenna through the plant is such that it precludes the antenna from being subjected to a common fire with the fixed communication system.

We find that with the licensee's clarification, the portable communications systems meets the guidelines of Section D.5(d) of Appendix A to BTP 9.5-1 and is, therefore acceptable.

Penetration Seals, Section 3.1.19

DELETED (Response contingent on additional BECo information)

Testing Fire Detectors, Section 3.2.2

In the Fire Protection SER, we requested that the licensee confirm the adequacy of new and existing fire detector systems by testing in plant areas where:

(1) ceiling heights are greater than 12 feet,

(2) ceiling obstructions, such as joists and beams, are greater than 8 inches deep (4 inches in the case of heat detectors), or

(3) ventilation rates are greater than 9.6 air changes per hour.

By letter dated February 29, 1980, the licensee informed us that, with four other utilities, they have retained the NUTECH corporation to develop an in-situ test of smoke detectors. The licensee stated that further action on this task was contingent upon our response regarding an in-situ fire detector test.

The required methodology for an in-situ fire detector test to confirm the adequacy of new and existing fire detector systems is beyond the current state-of-the-art and, therefore, the test cannot be performed at this time. We are of the opinion that with acceptable bench testing of smoke detectors and considering state-of-the-art techniques, the in-situ tests are not required.

Cable Combustibility, Section 3.2.4

DELETED (Response contingent on additional BECo information)

Suppression of Charcoal Fire in Augmented Off-Gas System, Section 3.2.6

In the Fire Protection SER, it was our concern that a charcoal fire inside the augmented off-gas system (AOGS) charcoal vessels may result in an unacceptable radioactivity release.

By letters dated January 16, 1979 and July 6, 1979, the licensee provided the results of a dose calculation which demonstrates that such a fire would result in a dose of less than 5 rem.

Our evaluation of releases in the AOGS was given in our report entitled "Technical Report on Operating Experience with Boiling Water Reactor Offgas Systems" (NUREG-0442). We state that calculations using very conservative assumptions have determined that no fire in the offgas system would result in radiation exposures to members of the public above a small fraction of the guidelines in 10 CFR Part 100 and therefore the AOGS as it exists is acceptable.

CO_2 System Discharge Test, Section 3.2.8

In the Fire Protection SER, we requested the licensee to provide calculations and reference prototype testing of the CO_2 system in the Cable Spreading Room to verify that a design concentration of 50% is achieved in all parts of the room, and a concentration of 30% is achieved within 1 minute and 30 seconds of actuation. If calculations and prototype testing are inconclusive, an in-situ discharge test should be performed.

By letter dated February 29, 1980, the licensee expressed concern regarding the deleterious effects that are reported to have occurred to sensitive electronic/electric equipment and associated cabling in the Cable Spreading Rooms at other plants where full-scale CO_2 discharge tests have taken place. The licensee has requested that the test be performed during the next refueling. We agree with the licensee that the CO_2 system discharge test be scheduled to be performed when the plant is in a refueling outage (scheduled for November, 1981).

Fire Barriers, Section 3.1.9

In the December 21, 1978 Safety Evaluation Report, it was our concern that the fire barriers enclosing the cable spreading room were inadequate since they contained an unrated fire door.

By letter dated March 30, 1979, the licensee proposed to upgrade the existing glass panel door in the cable spreading room. Subsequently, the licensee indicated that the existing glass panel door will be replaced with a 3-hour fire rated door.

The licensee's proposal to replace the existing glass panel door with a 3-hour fire rated door meets Section D.1.(j) of Appendix A to Branch Technical Position APCSB 9.5-1 and, therefore, is acceptable.

ENCLOSURE 2

FIRE PROTECTION REVIEW STATUS
PILGRIM NUCLEAR STATION, UNIT 1
DOCKET NO. 50-293

ITEM	DESCRIPTION	STATUS*
3.1.14	Exposed Steel Protection	C
3.1.16	Breathing Apparatus	C
3.1.17	Communication Systems	C
3.2.2	Testing Fire Detectors	C
3.2.6	Charcoal Fire In AOGS	C
3.2.8	CO_2 System Discharge Test	C
3.1.18	Alternate Shutdown Capability	UR
3.2.1	Safe Shutdown Analysis	UR
3.2.7	D.C. Power System Hazard Analysis	UR
3.1.19	Penetration Seals	R
3.2.4	Cable Combustibility	R

* C - Completed
UR - Under Review
R - Requirements