

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-320/81-19

Docket No. 50-320

License No. DPR-73 Priority -- Category C

Licensee: Metropolitan Edison Company  
P.O. Box 480  
Middletown, PA 17057

Facility Name: Three Mile Island Nuclear Station, Unit 2

Inspection at: Middletown, Pennsylvania

Inspection conducted: October 5-7, 1981

Inspectors: P. S. Koltay, Reactor Inspector

11/20/81  
date signed

Approved by: S. D. Ebner, Chief, Plant Systems  
Section, DETI

11/20/81  
date signed

Inspection Summary:

Inspection on October 5-7, 1981 (Report No. 50-320/81-19)

Areas Inspected: Routine unannounced inspection of the Fire Protection/-  
Prevention Program including: administrative procedures, assignment of functional  
responsibilities, observation of critical fire area, action on previous inspection  
findings, fire barrier penetration seals, and technical specification surveillance  
records. The inspection involved 13 inspector hours on site by one regional based  
inspector.

Results: Of the six areas inspected, no items of noncompliance were identified  
in five areas; one deviation from a commitment was identified in one area.  
(Deviation - paragraph 7)

DETAILS1. Persons Contacted

S. D. Chaplin, Licensing Engineer  
E. H. Gischel, Director, Plant Engineering  
G. A. Kunder, Technical Specification Compliance Supervisor  
S. E. Lane, Fire Protection Engineer  
T. A. O'Connor, Lead Fire Protection Engineer  
J. W. Quinnette, Fire Protection Engineer  
C. D. Rowe, Modifications/Operations Quality Assurance

All the above personnel attended the exit meeting.

2. Licensee Action on Previous Inspection Findings

(Closed) Inspector Followup Item (320/79-19-03) and Infraction (320/78-38-01).  
Poor housekeeping in the Cable Spreading Room.

The referenced reports identified the licensee's failure to maintain the cable spreading room free of transient combustible materials such as accumulated debris, recording tape and temporary tables.

The inspector reviewed procedure AP 1008, Good Housekeeping, dated November 12, 1980. The inspector verified that the cable spreading room was free of transient combustibles at the time of the inspection, and that the licensee conducts periodic housekeeping inspections of the area.

(Closed) Unresolved Item (320/79-15-01) Auxiliary Building Roof Charcoal Filter Sprinkler System.

The inspector verified that the auxiliary building roof charcoal filters and the associated sprinkler systems have been removed from service. This item is no longer applicable and it is considered closed.

(Closed) Unresolved Item (320/79-15-04 and 79-19-01) Auxiliary Diesel Generators, Fire Protection.

The licensee stated that the auxiliary generators are no longer vital to the safe maintenance of existing plant conditions and technical specification requirement for the equipment have been eliminated. Accordingly unresolved items relating to the fire protection of the above equipment are considered closed.

(Closed) Unresolved Item (320/79-26-06) Fire Barrier Penetration Seals Utilizing Silicone Foam.

The referenced report discussed the licensee's use of mineral wool as a chafing guard in electrical cable floor penetration seals. Due to the placement of chafing guards, the required uniform depth may not have been maintained for all penetrations.

Through visual inspections of a random sample of the affected penetrations, the inspector verified that the licensee removed all chafing materials and filled the penetrations with silicone foam.

(Closed) Unresolved Item (320/79-15-05) Hose Houses, 1 1/2 inch Fire Hose.

The referenced report discusses the licensee's failure to provide adequate lengths of 1 1/2 inch diameter fire hose in hose houses.

The inspector verified that the licensee provided 300 feet of 1 1/2 inch diameter hose in each of the hose houses located near building access routes.

(Closed) Unresolved Item (320/79-19-02 and 79-29-02) Rad Waste Storage Area, Fire Protection.

The referenced reports discuss the lack of fire protection for the radwaste storage building (Paint Shed).

The inspector verified that the licensee installed automatic sprinklers and fire detection devices inside the storage area. In addition, a hydrant was installed in the vicinity of the building. The licensee also developed a fire fighting plan for the area. HP monitoring equipment is located in the fire brigade van, which is used to respond in case of a fire emergency.

(Closed) Inspector Followup Item (320/79-19-04) Fire Extinguisher Inspections.

The referenced report discussed the licensee's failure to conduct monthly portable fire extinguisher inspections in several plant areas.

The inspector randomly checked portable extinguisher stickers in all accessible plant areas. The inspector verified that monthly fire extinguisher inspections are conducted by the licensee.

(Closed) Unresolved Item (320/79-19-06) Fire Brigade Training

The referenced report discussed the inadequacies of certain segments (hands on equipment) of the licensee's fire brigade training program.

Since the issuance of the referenced report, the licensee has established a fire brigade training program, which satisfies 10CFR50, Appendix R requirements, including classroom training of brigade members and brigade leaders, regular drills with offsite fire department participation and hands on equipment training at the York County Fire School. Various segments of the training have been reviewed by the inspector during this and previous inspections and found to be acceptable.

(Closed) Deficiency (320/78-38-02) Fire Pump Monthly Surveillance Test 3303-MI.

The referenced report discussed the licensee's failure to perform certain steps prescribed in the procedure for the monthly functional fire pump test.

The inspector reviewed the results of each monthly fire pump test performed during 1981 to date. The inspector verified that the monthly tests were performed in accordance with procedure SP3303MI, revision 9. The inspector noted that the requirements of the procedure were satisfied during each test.

No item of noncompliance was identified.

### 3. Fire Protection/Prevention Program

#### a. Administrative Controls

The inspector reviewed the following procedures and documents:

- AP-1038, revision 2, Administrative Controls, Fire Protection Program;
- AP-1034, revision 4, Control of Combustible Materials;
- AP-2101-1.2, Transient Combustible List;
- AP-1008, revision 9, Good Housekeeping;
- 1410-4-26, revision 5, Welding, Cutting, Grinding and Open Flame Work Procedure for Fire Safety;

The inspector verified that the licensee has established an adequate fire protection organization and has implemented an adequate fire protection/prevention program which includes: **delineation of responsibility** for personnel participating in the program, implementation of administrative procedures, training for fire brigade members and leaders, coordination and communication with offsite fire departments, fire fighting strategies for vital areas and maintenance and surveillance of fire protection equipment.

### 4. Reactor Building Fire Protection

The inspector, during the course of the inspection and at the exit interview, discussed with the licensee the status of the fire protection equipment located inside the reactor containment building. The licensee stated that to date the physical condition of fire protection equipment inside containment has not been examined. However, during the course of discussions the following was agreed to by the licensee:

- a. Fire detection devices and annunciated circuits are no longer functional.

- b. The rubber fire hoses attached to the containment standpipe connections, and the rubber discharge hoses of the portable CO2 extinguishers are probably no longer functional.

The inspector expressed concerns regarding the introduction of combustible materials in the containment building as part of a decontamination program.

The licensee agreed that prior to initiation of any type of prolonged activity, inside containment, a complete review of existing and newly introduced combustible materials will be conducted and adequate fire protection measures will be taken.

The results of such reviews will be submitted to the NRC for review. This item is considered unresolved. (320/81-19-01).

5. Review of Surveillance Test Records Associated with Technical Specification Requirements

The inspector selected and reviewed the following records to verify that the associated required fire protection surveillances had been performed and that the acceptance criteria had been met:

- SP 4333 SAI, Fire System Detectors Instrument Functional Test, rev. 0. The inspector reviewed the results of the test performed on October 15, 1980.
- SP 4333 SA2, Fire Detection Circuit Operational Check, rev. 0. The inspector reviewed the results of tests performed on August 20, 1980.
- SP 43331 R3 Fire Barrier Penetration Fire Seal Inspection, rev. 1. The inspector reviewed the results of inspections conducted since September 12, 1981. The inspection process is still underway by the licensee.

No item of noncompliance was identified.

6. Critical Fire Areas

The inspector verified that the cable spreading room is free of transient combustible materials.

No item of noncompliance was identified.

7. Fire Barrier Penetration Seals

The inspector reviewed temporary corrective measures taken by the licensee to maintain electrical cable penetration fire seals functional. The progressive deterioration of fire barriers using Firewall 50 sealant, a trade name for the Chemtrol Corporation, was previously described in the following reference documents:

- a. Nonconformance Report (NCR) No. 78-132, dated June 15, 1978;
- b. Licensee Event Report LER No. 79-12/3L, dated September 11, 1979;
- c. IE Inspection Report 50-320/79-26
- d. Licensee's letter GQL 1583 to Mr. B. H. Grier, Director, NRC Region I, dated December 31, 1980.
- e. Licensee letter LL2-81-0028 to B. H. Grier, Director, NRC, Region I, dated February 4, 1981.
- f. Licensee Event Report LER LL2-81-0062, dated March 3, 1981.

The licensee developed a methodical program for conducting temporary repairs on the defective penetration seals. The program consists of yearly inspections of the penetrations in accordance with procedure SP4331-R3 and repair of cracks and separation openings in accordance with procedure MP-1410-43.

During the course of this inspection, the inspector noted that the deterioration of Firewall 50 sealant has increased. Several penetrations developed bulges, indicating that layers of the materials are separating from the core of the penetration. The inspector also brought to the attention of the licensee, that two penetrations in the cable spreading room have developed 1/4 to 1/2 inch wide and 10-15 inch long cracks which penetrate the depth of the material. The licensee, following the requirements of Technical Specification 3.11.7, posted a fire watch in the area while temporary repairs were initiated and completed by the licensee.

Fire barrier penetration seals were designed and installed to meet the requirements of Appendix A to Branch Technical Position APCS 9.5-1 "Guidelines for Fire Protection for Nuclear Power Plants", section D3, which states in part, "Cable and cable tray penetrations of fire barriers should be sealed to give protection at least equivalent to that fire barrier. The design of the fire barriers ... should as a minimum, meet the requirements of ASTM E-119, Fire Test of Building Construction and Materials ..."

Licensee's document NYO-77-002, rev. 0, Fire Protection Program Evaluation, Three Mile Island Nuclear Station, Unit 2, page 4.1-61, states in part: "All vertical cable trays and conduits passing through fire rated floors and all horizontal cable trays and conduits passing through fire rated walls have penetration seals installed to prevent flame and smoke passage or propagation through the penetration. The penetration seals have the same fire rating as the wall or floor they penetrate." The penetration seals used on TMI-2 have been tested in accordance with the requirements of ASTM E-119-73, "Standard Methods of Fire Tests of Building Construction and Materials".

Contrary to the above, due to the extensive deterioration of Firewall 50 sealant material, the penetration seals do not have the same fire rating as the wall or floor they penetrate. Also contrary to licensee commitments indicated in references b, d and f, a permanent repair program has not been initiated.

The licensee's failure to satisfy the above guidelines is considered to be a deviation from the licensee's commitment to Appendix A to the BTP 9.5-1. (320/81-19-02)

8. Unresolved Item

Unresolved items are matters about which more information is required to determine whether they are acceptable, items of noncompliance or deviations. Unresolved items are discussed in paragraph 3b.

9. Exit Interview

The inspector met with the licensee representatives listed in paragraph 1 at the conclusion of the inspection on October 7, 1981 to discuss the scope and findings of the inspection. On October 16, 1981, a telephone call between Mr. P. Koltay of this office and Mr. J. Larson, Licensing Supervisor, the scope and findings of this inspection, as documented in this report, also were presented.