

TECHNICAL REPORT

EVALUATION OF SELECTED FIRE DOOR AND DOOR FRAME ASSEMBLIES  
(SUPPLEMENT 4)

by  
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Prepared for

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Susquehanna Steam Electric Station  
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## SUMMARY AND CONCLUSIONS

An evaluation of selected fire doors and frames protecting safety related areas was conducted for the Pennsylvania Power and Light Co. (PP&L) at Susquehanna Steam Electric Station, Units 1 & 2. The purpose of the evaluation was to examine certain unlabeled door assemblies and render an opinion on their fire resistance rating.

This evaluation was requested by PP&L as a supplement to the original evaluation contained in a Factory Mutual report dated January 1985, Supplement 1 dated August 1985, Supplement 2 dated June 1986 and Supplement 3 dated May 1987.

It was concluded that the special purpose (water tight) door assemblies identified as Doors 14, 23 and 24 should provide a minimum of 1-1/2 hours fire resistance.

## I

INTRODUCTION

The plant was visited in July 1987 by L. J. Mattern, FMEA, Loss Prevention Specialist. Three doors and frames were examined during this visit. The information gathered during this examination was then forwarded to the FMRC Approvals Division for evaluation. The assemblies are located in Unit 1 and 2 Reactor Buildings.

The writer is an Engineer in the Approvals Division of Factory Mutual and has 7 years of experience, primarily in the nuclear industry. His primary responsibility is testing and determination of fire resistance of building materials and fire rated assemblies.

## II

FIRE DOOR ASSEMBLY EVALUATIONS

Three unlabeled special purpose (water tight) fire door assemblies were examined during this visit to the Susquehanna Steam Electric Station at the request of the Pennsylvania Power and Light Company (PP&L)

**2.1 FIRE DOOR ASSEMBLIES****2.1.1 Location**

The doors examined were located at Elevation 645 and were identified as Doors 14, 23 and 24. Door 14 separates Unit 2, A and B, Core Spray Pump Rooms; Door 23 separates Unit 1, A and B, RHR Pump Rooms and Door 24 separates Unit 2, A and B, RHR Pump Rooms.

**2.1.2 Construction**

The three doors were inspected and found to be identical to one another. They measure 3 ft wide x 7 ft high and consist of a 1/4 in. steel plate with 1 in. x 2 in. x 3/16 in. steel channel. There are 2 hinges welded to the door and frame provided with 5/8 in. diameter pins. Each door is equipped with twelve steel bar latches operated by a center mounted wheel type operator. The latch throws are 1-1/4 in. long and engage the 5/8 in. thick steel frame on the top, bottom and sides. The doors are rubber gasketed to make a waterproof seal with the 5/8 in. thick steel frame. Doors 23 and 24 are mounted in 36 in. thick reinforced concrete walls. Door 14 is mounted in a 30 in. thick reinforced concrete wall.

**2.1.3 Evaluation**

These 3 doors were found to be identical to a door which had been previously evaluated by Samuel M. Knight of Factory Mutual Research Corporation with conclusion contained in a report entitled "Evaluation of Selected Fire Door and Door Frame Assemblies" dated January 1985. The door previously evaluated is identified as Door 13 and referenced in Section 2.2, Special Purpose Door, in the above noted report. The conclusion in that report is that Door 13 would provide a minimum of 1-1/2 hours of fire resistance.

**2.1.4 Conclusion**

Doors 14, 23 and 24 would provide a minimum of 1-1/2 hours fire resistance.

