

**METROPOLITAN EDISON COMPANY**  
**THREE MILE ISLAND NUCLEAR STATION**  
**UNIT 1**

**SUMMARY OF FACTORY TESTS**  
**REACTOR BUILDING FAN ASSEMBLIES**



**CONTRACTOR: AMERICAN AIR FILTER COMPANY**

**ENGINEER: GILBERT ASSOCIATES, INC.**

1415 15-

7910100 506

A

METROPOLITAN EDISON COMPANY  
THREE MILE ISLAND NUCLEAR STATION  
UNIT 1

PRELIMINARY REPORT  
SUMMARY OF FACTORY TESTS  
REACTOR BUILDING  
FAN ASSEMBLIES

MAY 9, 1969

CONTRACTOR: AMERICAN AIR FILTER COMPANY  
ENGINEER: GILBERT ASSOCIATES, INC.

1415 160

## C O N T E N T S

### SUMMARY

PROPOSED OUTLINE FOR TEST OF COOLING COIL PERFORMANCE AT ELEVATED  
TEMPERATURES AND PRESSURES

### RELIEF VALVE TEST PROGRAM

MATERIAL CONCERNING GENERAL ELECTRIC WATER COOLED MOTOR FOR  
REFERENCED (THREE MILE ISLAND, UNIT 1) NUCLEAR POWER PLANT

PROPOSED QUALIFICATION TEST - JOY AXIVANE FAN AND MOTOR (NUCLEAR)  
FOR RECIRCULATION SERVICE FOR NUCLEAR CONTAMINATION

FAN ASSEMBLY DRAWING (AAF DRAWING NO. D 107D832295A FILTER  
HOUSE, HV2)

SUMMARY

1415 162

## SUMMARY

This manual contains copies of test outlines and test reports relating to the Three Mile Island Nuclear Station, Unit No. 1 Reactor Building Fan Assemblies. These outlines and reports were submitted by American Air Filter Company, the prime manufacturer of the fan assemblies, as part of their contract obligation to demonstrate ability to perform.

a. Proposed Outline for Test of Cooling Coil Performance at Elevated Temperatures and Pressures

This document, consisting of a cover sheet and six pages, describes the test equipment, test methods, and reporting procedure to be used in evaluating the performance of the emergency duty cooling coils at three entering steam-air mixtures including those postulated as existing during a design basis accident at 281 F and 68.3 psia.

b. Relief Valve Test Program

This document, consisting of four pages, describes facilities for static and dynamic testing of prototype relief valves. It also describes how a computer program will be used to predict valve performance. Relief valves are used in the fan assembly housings to permit rapid equalization of any large pressure differential imposed on the housings in the event of an accident.

c. Material Concerning General Electric Water Cooled Motor for Referenced (Three Mile Island, Unit 1) Nuclear Power Plant

This document consists of:

1. Cover sheet

2. Joy Manufacturing Co. bill of material (seven pages) describing the General Electric Co. motor that will be used in the fan assemblies.
3. General Electric Co. letter of March 7, 1969 relating the results of a previously run Crane Packing Co. seal test to the seal design proposed for the fan assembly motors.
4. Crane Packing Co., "Project #1205 - 2 $\frac{1}{4}$ " Type 1 seal with Cranelost bellows for nuclear power plant pump application - Progress Report #1." This is a report, in three pages, on the test of a seal similar to the type proposed to seal the motors to be used in the fan assemblies. The test shows satisfactory wear characteristics and ability to junction after exposure to radiation.
5. Report of the Knolls Atomic Power Laboratory, "Testing Electrical Insulation for Use in Gamma-Ray Fields." This report, consisting of a cover sheet and five pages, describes the successful radiation exposure test of the type of motor insulation proposed for the fan assembly motors.
6. "Fan Drive Motor for Reactor Contaminant Building Ventilation and Cooling System." This is an eight page specification prepared by General Electric Co. to describe the fan proposed for the fan assemblies.

- d. Proposed Qualification Test - Joy Axivane Fan and Motor (Nuclear)  
for Recirculation Service for Nuclear Contamination

This is a six page description of the proposed test for the fan and motor to be used in the fan assemblies. Included in this test is the operation of the fan and motor under simulated accident conditions of temperature, humidity, and pressure.

1415 165