PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 115870

Date: July 6, 1976

Title: Main Steam Relief Valve Fails to Operate at Vermont Yankee

The failure sequence was:

1. During surveillance testing it was noted that the air operator plunger on a relief valve (S/N 12) did not move when air was applied.
2. It was decided to test all relief valves. Of the remaining three, two additional valves failed (S/N 14 & S/N 37).
3. The valve air operator diaphragms had failed due to excessive heating. This was caused in part by (1) improper insulation in the proximity of the diaphragms and (2) an extended operating cycle.

Corrective action:

1. The diaphragms were replaced.
2. A modification (not specified) to the valve insulation was made.
3. The valve operating cycles will be shortened. Operability checks of the air operator diaphragm followed by a diaphragm replacement on all valves and a subsequent retest of the new diaphragms independent of the initial test result will be carried out during each refueling outage.

Design purpose of failed system or component:

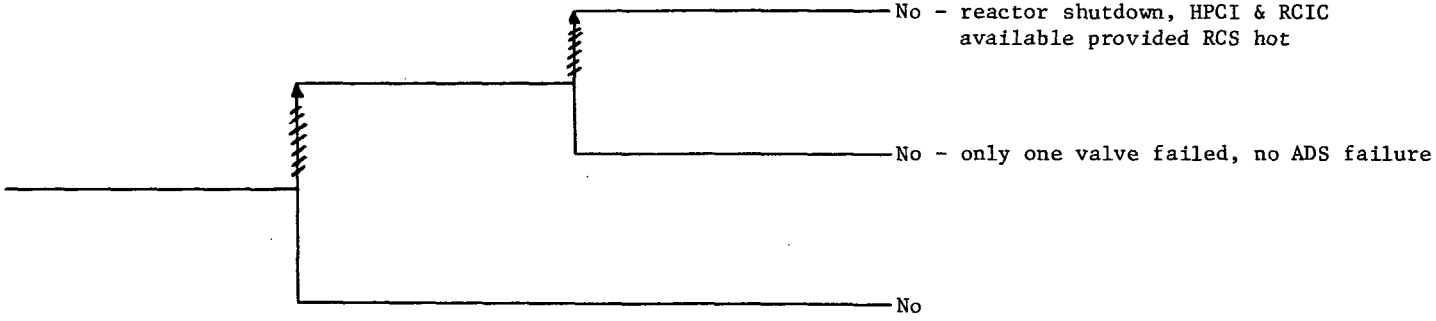
1. The ADS system serves as a backup to the HPCI.
2. Relief valves allow for reactor pressure control.

Unavailability of system per WASH 1400:* ADS: $5 \times 10^{-3}/D$

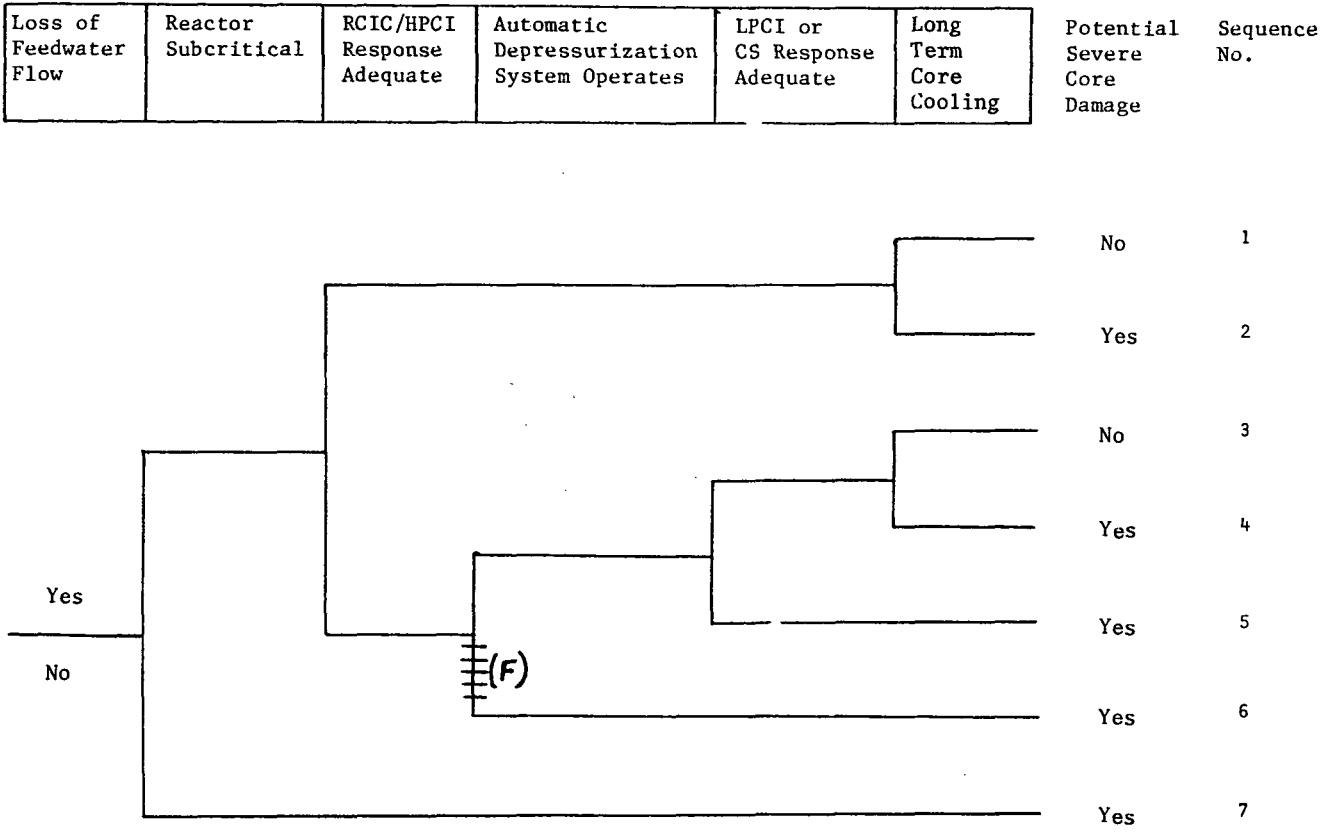
Unavailability of component per WASH 1400:* relief valve failure to open: $1 \times 10^{-5}/D$

*Unavailabilities are in units of per demand D^{-1}. Failure rates are in units of per hour HR^{-1}.

Surveillance testing of relief valves underway	Relief valve S/N 12 air plunger failed to operate	Two additional valves fail for the same reason. ADS system is thus failed	Potential Severe Core Damage



NSIC 115870 — Actual Occurrence for Main Steam Relief Valve Fails to Operate at Vermont Yankee



NSIC 115870 — Sequence of Interest for Main Steam Relief Valve Fails to Operate at Vermont Yankee

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 115870

DATE OF LER: July 20, 1976

DATE OF EVENT: July 6, 1976

SYSTEM INVOLVED: ADS

COMPONENT INVOLVED: relief valves

CAUSE: failure of the air operator diaphragms

SEQUENCE OF INTEREST: Loss of feedwater

ACTUAL OCCURRENCE: main steam relief valves fail to operate at Vermont Yankee

REACTOR NAME: Vermont Yankee

DOCKET NUMBER: 50-271

REACTOR TYPE: BWR

DESIGN ELECTRICAL RATING: 514 MWe

REACTOR AGE: 4.3 yr

VENDOR: General Electric

ARCHITECT-ENGINEERS: Ebasco

OPERATORS: Vermont Yankee Nuclear Power Corp.

LOCATION: 5 miles S of Battleboro

DURATION: 4383 (a) hours

PLANT OPERATING CONDITION: 0% power

SAFETY FEATURE TYPE OF FAILURE: (a) inadequate performance; (b) failed to start; (c) made inoperable; (d) _____

DISCOVERY METHOD: surveillance testing

COMMENT: -