PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 79565

Date: December, 1972

Title: Loss of Normal Station Power Causes Cooling System Transient at Vermont Yankee (Operations Report for December, 1972)

The failure sequence was:
1. An internal fault on the startup transformer resulted in a loss of offsite power.
2. This resulted in a reactor trip followed by a turbine trip.
3. The diesel generator started automatically and loaded essential busses.
4. The HPCI failed to autostart on high dry well pressure, but was manually initiated.
5. The reactor pressure rose to 1130 which resulted in the opening of 3 relief valves. One relief valve failed to open. One safety valve chattered on its seat about 100 psig. below its setpoint.
6. RCIC/HPCI were used for decay heat removal and water level control.
7. No reason was given for the failure of HPCI to autostart. Failure of the fourth relief valve to lift was attributed to expansion of the valve's components.

Corrective action:

1. The chattering safety valve was replaced.
2. The failed relief valve components were replaced.

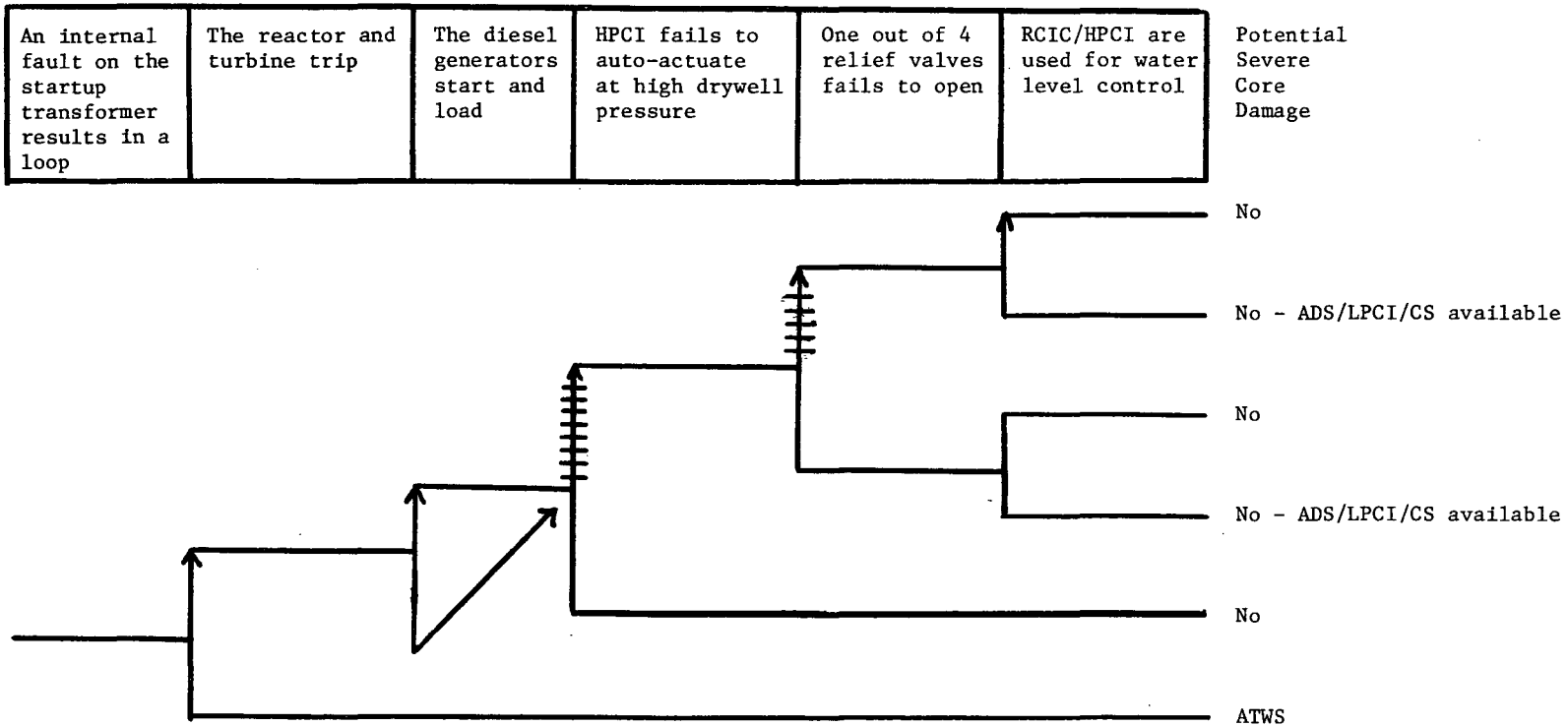
Design purpose of failed system or component:

1. Offsite power provides for station load when the unit is not generating electricity.
2. HPCI provides for high pressure injection during a small LOCA.
3. The relief valves are used for pressure control.

Unavailability of system per WASH 1400:* HPCI: $8.0 \times 10^{-2}/D$
RCIC: $8.0 \times 10^{-2}/D$

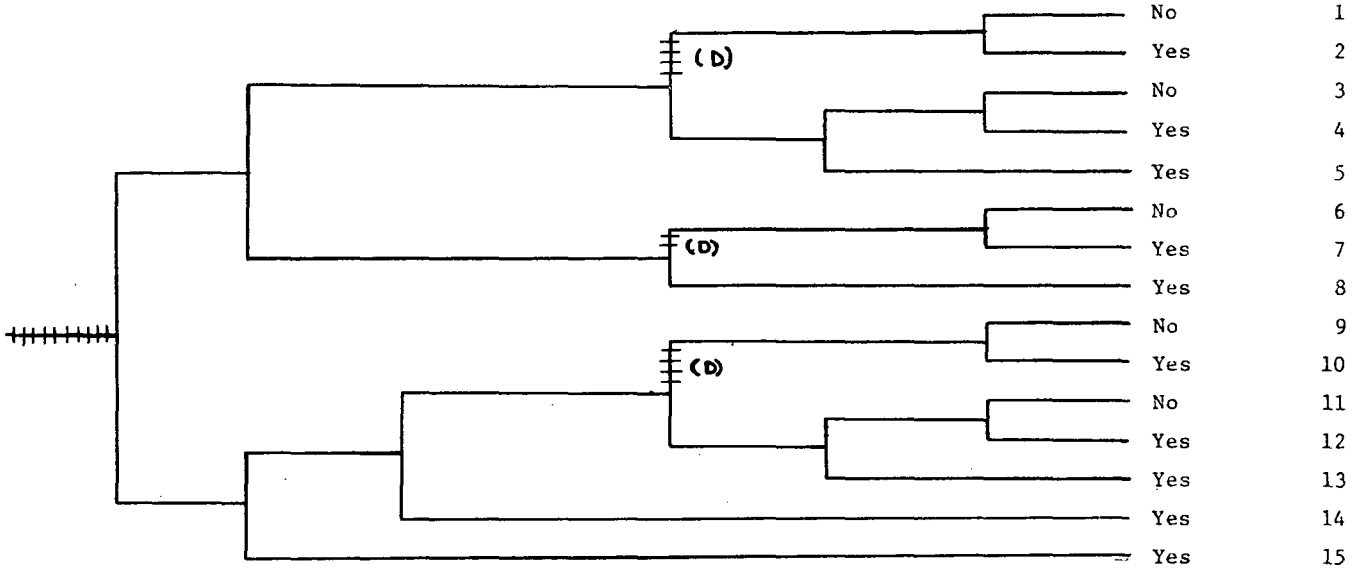
Unavailability of component per WASH 1400:* relief valve, failure to open: $1 \times 10^{-5}/D$

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



NSIC 79565 — Actual Occurrence of Loss of Normal Station Power Causes Cooling System Transient at Vermont Yankee

Loss of Offsite Power	Reactor Scram	Diesel Start and Load	Reactor Made Sub-critical by the SBLCS Or Rods Are Manually Driven In	RCIC/HPCI Initiates	ADS/LPCI CS Initiates	Long Term Core Cooling	Potential Severe Core Damage	Sequence No.
							No	1
				(D)			Yes	2
							No	3
							Yes	4
							Yes	5
							No	6
				(D)			Yes	7
							Yes	8
							No	9
				(D)			Yes	10
							No	11
							Yes	12
							Yes	13
							Yes	14
							Yes	15



NSIC 79565 — Sequence of Interest of Loss of Normal Station Power Causes Cooling System Transient at Vermont Yankee

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 79565

DATE OF LER: December 1, 1972

DATE OF EVENT: December, 1972

SYSTEM INVOLVED: HPCI, ADS

COMPONENT INVOLVED: relief valve

CAUSE: Unspecified for HPCI, mechanical failure of valve components

SEQUENCE OF INTEREST: Loss of Offsite Power

ACTUAL OCCURRENCE: Loss of Normal Station Power

REACTOR NAME: Vermont Yankee

DOCKET NUMBER: 50-271

REACTOR TYPE: BWR

DESIGN ELECTRICAL RATING: 514 MWe

REACTOR AGE: .8 yr

VENDOR: General Electric

ARCHITECT-ENGINEERS: Ebasco

OPERATORS: Vermont Yankee Nuclear Power Corp.

LOCATION: 5 miles S of Battleboro, VT

DURATION: N/A

PLANT OPERATING CONDITION: 63% power

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

DISCOVERY METHOD: Operational Event

COMMENT: —