PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 145209

Date: December 20, 1978

Title: Both Power Operated Relief Valves (PORVs) Open During Troubleshooting at Fort Calhoun 1

The failure sequence was:

1. During a heatup from cold shutdown, one of the two PORV channels failed to respond to system pressure changes.
2. A technician, while troubleshooting the problem, pulled recorder fuses.
3. This caused both PORVs to open.
4. The operator closed both PORV isolation valves.

Corrective action:

1. Since the PORVs were being used for NDT overpressure protection, additional administrative controls were established to ensure an overpressure condition could not occur.
2. System modifications to prevent reoccurrence were being considered.

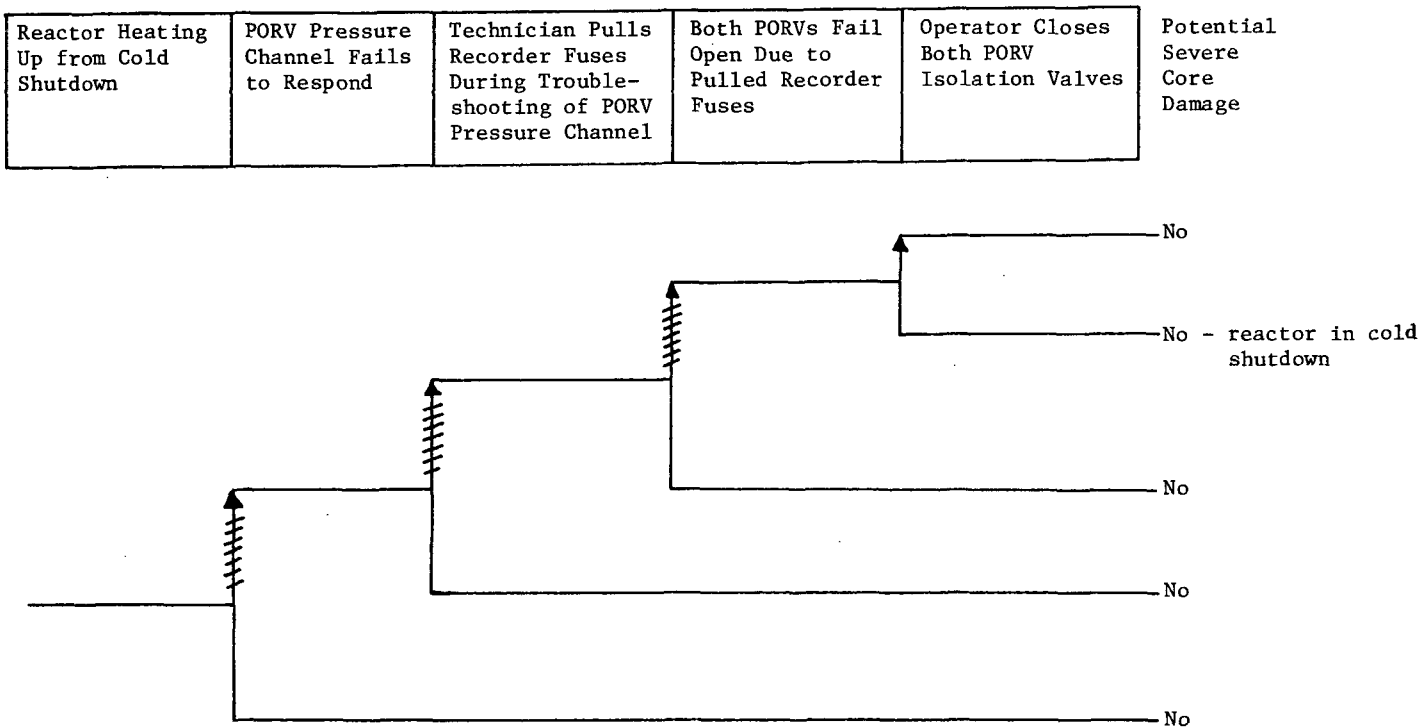
Design purpose of failed system or component:

1. During normal operation, the PORVs provide relief protection for the RCS and prevent lifting the pressurizer safety valves during pressure transients.
2. During cold shutdown, the PORVs provide NDT overpressure protection.

Unavailability of system per WASH 1400:* —

Unavailability of component per WASH 1400:* relief valve, inadvertant opening: 1×10^{-5}/hr

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



NSIC 145209 — Actual Occurrence for Both Power Operated Relief Valves Open During Troubleshooting at Fort Calhoun 1

Small LOCA	Reactor Trip	Auxiliary Feedwater and Secondary Heat Removal	High Pressure Injection	Low Pressure Recirculation and LPR/HPI Cross-Connect	Potential Severe Core Damage	Sequence No.
////////*					No	1
					Yes	2
					Yes	3
					No	4
					Yes	5
					Yes	6
					Yes	7

NSIC 145209 — Sequence of Interest for Both Power Operated Relief Valves Open During Troubleshooting at Fort Calhoun 1

*initiating event requires operator failure to close PORV isolation valves.

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 145209

DATE OF LER: January 2, 1979

DATE OF EVENT: December 20, 1978

SYSTEM INVOLVED: reactor coolant

COMPONENT INVOLVED: power operated relief valves

CAUSE: Technician error in pulling recorder fuses during troubleshooting resulted in both PORVs failing open, human error

SEQUENCE OF INTEREST: two stuck open PORVs

ACTUAL OCCURRENCE: two stuck open PORVs during cold shutdown

REACTOR NAME: Fort Calhoun 1

DOCKET NUMBER: 50-285

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 457 MWe

REACTOR AGE: 5.5 yr

VENDOR: CE

ARCHITECT-ENGINEERS: Gibbs & Hill, Inc.

OPERATORS: Omaha Public Power District

LOCATION: 19 miles north of Omaha, Nebraska

DURATION: N/A

PLANT OPERATING CONDITION: Cold shutdown

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

DISCOVERY METHOD: During operation

COMMENT: —