

PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 103892

Date: June 27, 1975

Title: Excessive Reactor Coolant Cooldown Rate at Oconee 3

The failure sequence was:

1. During a power reduction, an operator initiated a secondary side transient, which caused a primary side pressure/temperature transient and opened the pilot actuated pressurizer relief valve.
2. The relief valve failed to close (due to boric acid crystal buildup) and did not indicate open in the control room.
3. Reactor trip and high pressure injection occurred.
4. The operator closed the PORV block valve, re-opened it because of increasing pressurizer level, and finally closed it when RC pressure reached 800 psig, terminating the transient.
5. The relief valve quench tank rupture disk blew out, damaging some pressurizer insulation.
Corrective action;

1. Procedures revised to prevent the initiation of a secondary side transient.
2. The unit 1 and unit 2 PORVs were to be examined for boric acid crystal buildup.
3. The PORV will be test cycled prior to each startup.
4. Operating personnel were advised that closure of the block valve was the corrective action for this occurrence.

Design purpose of failed system or component:

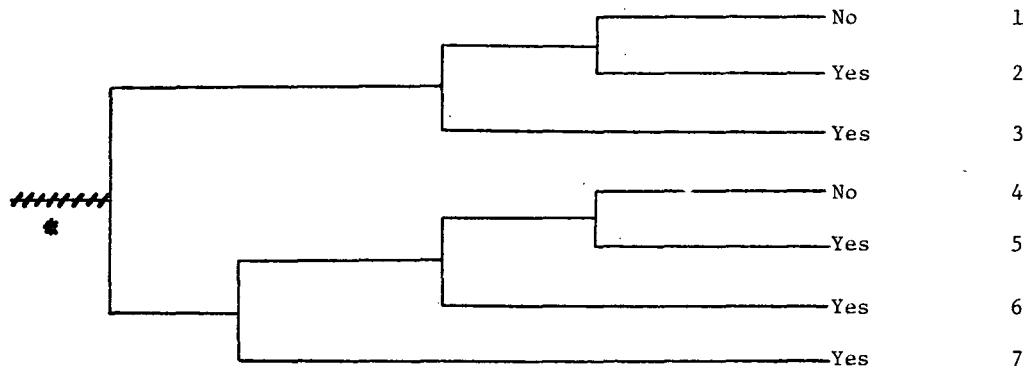
1. The valve provides pressure relief protection for the RCS.

Unavailability of system per WASH 1400:* N/A

Unavailability of component: PORV failure to close: $10^{-2}/D$

* Unavailabilities are in units of per demand D^{-1} . Failure rates are in units of per hour HR^{-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.
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NSIC 103892 — Sequence of Interest for Excessive Cooldown Rate at Oconee 3

* failure requires operator error in failing to close the PORV isolation valve.

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 103892

DATE OF LER: June 27, 1975

DATE OF EVENT: June 13, 1975

SYSTEM INVOLVED: RCS

COMPONENT INVOLVED: Pilot operated relief valve

CAUSE: PORV stuck open, operator error

SEQUENCE OF INTEREST: LOCA - small break from stuck open PORV

ACTUAL OCCURRENCE: Stuck open PORV

REACTOR NAME: Oconee 3

DOCKET NUMBER: 50-287

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 887 MWe

REACTOR AGE: 2.5 yr

VENDOR: Babcock & Wilcox

ARCHITECT-ENGINEERS: Duke Power Co.

OPERATORS: Duke Power Co.

LOCATION: 30 miles west of Greenville, SC

DURATION: N/A

PLANT OPERATING CONDITION: at 100% power

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

DISCOVERY METHOD: Transient while operating

COMMENT: -