

PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 155475

Date: March 24, 1980

Title: Total Loss of Saltwater Cooling System at San Onofre 1

The failure sequence was:

1. With the reactor at full power and south saltwater cooling (SWC) pump G-13B in operation, G-13B shaft failed due to excessive vibration from worn bearings.
2. This resulted in low flow and low discharge pressure alarms in the control room and auto start of north SWC pumps G-13A.
3. North pump G-13A discharge valve failed to open due to an O-ring failure caused by desiccant in the instrument air lines. This resulted in no flow from either pump.
4. Auxiliary saltwater cooling pump G-13C was manually started from the control room but failed to develop sufficient flow because of insufficient prime, and the pump was shut down.
5. The screen wash pumps were manually started from the local panel and valves manually aligned to discharge to the bottom component cooling water (CCW) heat exchanger, which reestablished CCW cooling.
6. Adequate prime was restored to SWC pump G13-C and the pump was placed in service.

Corrective action:

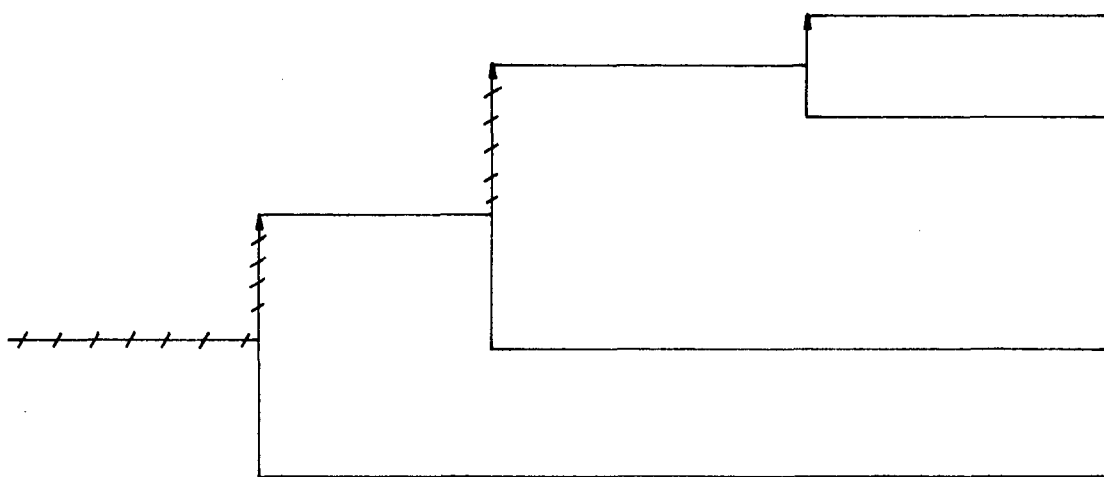
North SWC pump valve POV-5 was opened and the north SWC pump placed in service. The auxiliary SWC pump surveillance testing was increased from once per week to daily during low tide conditions.

Design purpose of failed system or component:

The salt water cooling system provides essential cooling flow to the component cooling water system (RC pumps, RHR pumps, charging pumps, recirculation heat exchanger).

Reactor at full power and loss of SWC pump G-13B due to shaft failure	SWC pump G-13A starts but discharge valve fails to open	Auxiliary SWC pump G-13C manually started but fails to provide flow due to inadequate prime	Screen wash pumps manually started (locally) and re-aligned to provide flow to component cooling water heat exchangers
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Potential
Severe
Core
Damage



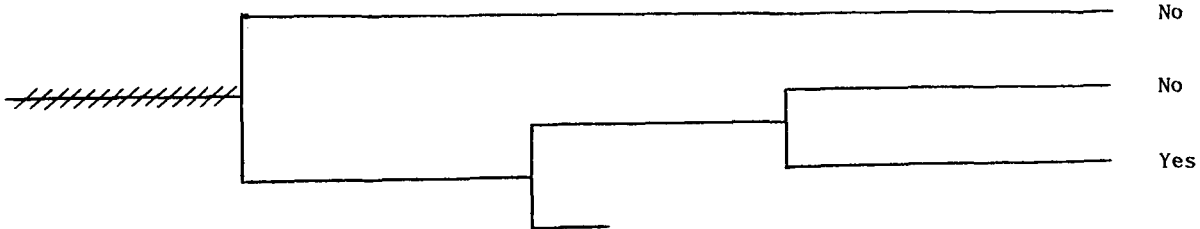
No

No - but reactor shutdown and natural circulation cooling required without component cooling water; turbine cycle cooling still available

No - turbine-driven AFW pump apparently self cooled

No

Reactor at Power and Loss of Salt-water Cooling System	Screen Wash Pumps Provide Adequate CCW Cooling	Manual Reactor Shutdown, RCPS Tripped	Auxiliary Feedwater and Secondary Heat Removal	Potential Severe Core Damage	Sequence No.
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NSIC 155475 - Sequence of Interest for Loss of Saltwater Cooling System at San Onofre 1

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 155475

LER NO.: 80-006

DATE OF LER: March 24, 1980

DATE OF EVENT: March 10, 1980

SYSTEM INVOLVED: Saltwater cooling system

COMPONENT INVOLVED: South pump, north pump discharge valve, auxiliary
pump

CAUSE: Pump and valve failures

SEQUENCE OF INTEREST: Loss of service water system

ACTUAL OCCURRENCE: Loss of service water system

REACTOR NAME: San Onofre 1

DOCKET NUMBER: 206

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 436 MWe

REACTOR AGE: 12.7 years

VENDOR: Westinghouse

ARCHITECT-ENGINEERS: Bechtel

OPERATORS: Southern California Edison

LOCATION: 5 miles south of San Clemente, California

DURATION: N/A

PLANT OPERATING CONDITION: Full power

TYPE OF FAILURE: Inadequate performance;
failed to start

DISCOVERY METHOD: Operational event

COMMENT: