

## PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 171733

Date: January 8, 1982

Title: Unavailability of Three Auxiliary Feedwater Pumps at Zion 2

The failure sequence was:

1. With the reactor at 90% power and 2A turbine-driven AFW pump out of service for maintenance, water leaks from two hydrogen coolers in the unit generator resulted in a generator trip and subsequent reactor trip.
2. Motor-driven auxiliary feedwater pumps 2B and 2C failed to start and run on steam generator low-low level due to improperly sensed pump suction pressure. (It was determined that, immediately after start, reverse flow existed in the pressure switch sensing line, resulting in a momentary low suction pressure indication when adequate pressure actually existed.)
3. Both pumps were manually started.

Corrective action:

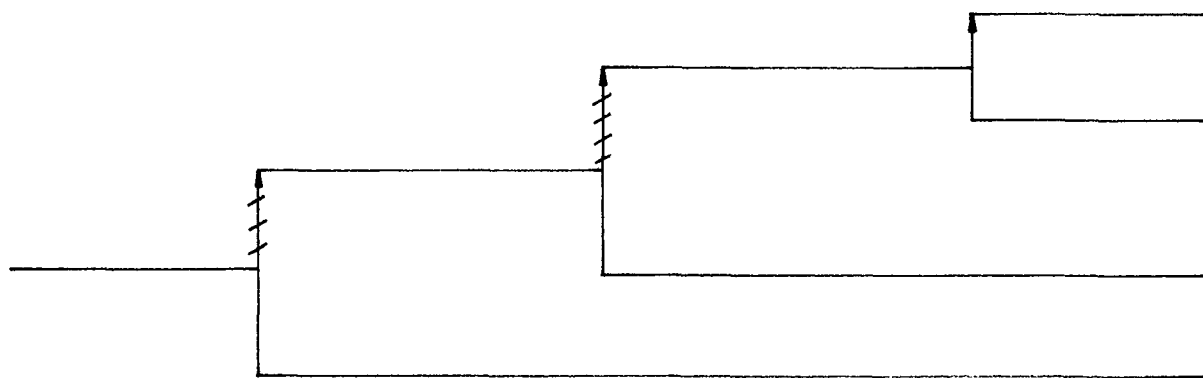
A time delay relay which momentarily bypasses the low suction pressure trip on pump start was added to the pump starting circuitry.

Design purpose of failed system or component:

1. The auxiliary feedwater system provides water for RCS cooling via the steam generators when the main feedwater system is unavailable.
2. An alternate safety-related source of water is service water supplied to suction of auxiliary feedwater pumps at 100 psig.

Reactor at 90% power and 2A turbine-driven AFW pump out of service for maintenance	Water leaks from two hydrogen coolers in the unit generator result in generator trip and subsequent reactor trip	Motor-driven AFW pumps fail to auto-start and run on low-low steam generator level due to low suction pressure trip caused by improperly sensed suction pressure	Motor-driven AFW pumps manually started
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Potential  
Severe  
Core  
Damage



No

No - bleed and feed  
plus main feed-  
water recovery  
available

No

No



# CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 171733

LER NO.: 81-033

DATE OF LER: January 8, 1982

DATE OF EVENT: December 11, 1981

SYSTEM INVOLVED: Auxiliary feedwater

COMPONENT INVOLVED: Auxiliary feedwater pumps

CAUSE: One pump was unavailable due to maintenance and the other two pumps tripped due to incorrectly sensed low suction pressure on starting

SEQUENCE OF INTEREST: Loss of feedwater

ACTUAL OCCURRENCE: Unavailability of three AFW pumps following trip

REACTOR NAME: Zion 2

DOCKET NUMBER: 50-304

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 1040 MWe

REACTOR AGE: 8.0 years

VENDOR: Westinghouse

ARCHITECT-ENGINEERS: Sargent & Lundy

OPERATORS: Commonwealth Edison

LOCATION: 40 miles north of Chicago, Illinois

DURATION: 360 h (estimated)

PLANT OPERATING CONDITION: Cooldown

TYPE OF FAILURE: Failed to start

DISCOVERY METHOD: Operational event

COMMENT: