PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 167117

Date: July 7, 1981

Title: Switchyard Voltage Drops Below Low Limit at Rancho Seco

The failure sequence was:

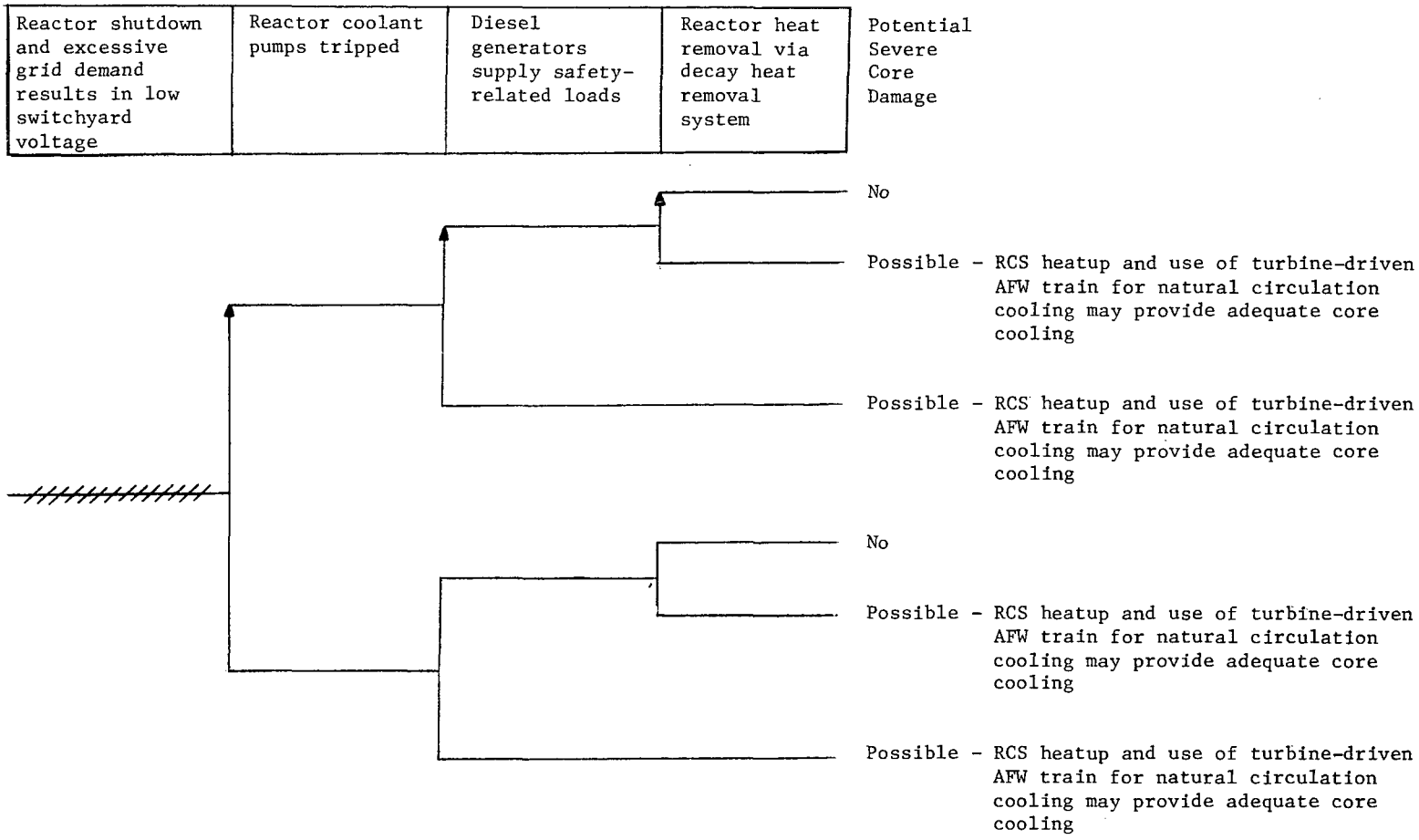
1. With the reactor in a heatup mode coming from cold shut down, excessive electrical demand resulted in a reduction in switchyard voltage to 207 kV. This is below the minimum voltage (214 kV) assumed for analysis.
2. The reactor coolant pumps were tripped to avoid excessive temperatures.
3. Two failures in the electrohydraulic control system for the turbine generator occurred.
4. The diesel generators were started and provided power to the safety-related buses.
5. The reactor was operated in the decay heat mode.

Corrective action:

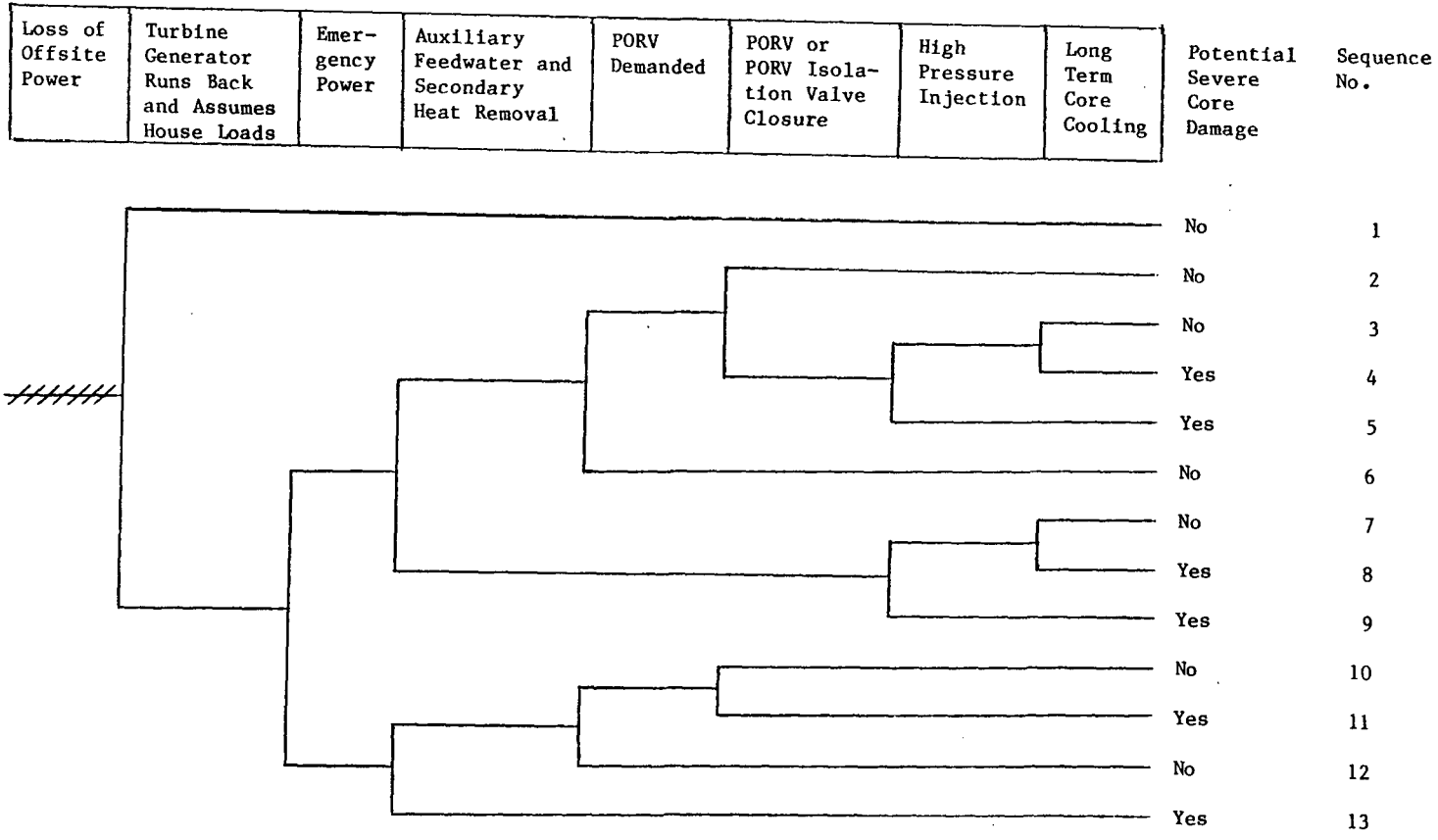
Direct switchyard voltage indications and alarms were to be installed to facilitate control room monitoring of switchyard voltages.

Design purpose of failed system or component:

Offsite power provides the preferred source of power to safety-related loads. The vital buses have 2 power supplies, offsite power and emergency diesel generators. The unit generator cannot directly power these buses.



NSIC 167117 - Actual Occurrence for Effective Loop at Rancho Seco



NSIC 167117 - Sequence of Interest for Effective LOOP at Rancho Seco

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 167117

LER NO.: 81-034

DATE OF LER: July 7, 1981

DATE OF EVENT: June 19, 1981

SYSTEM INVOLVED: Offsite power

COMPONENT INVOLVED: Switchyard

CAUSE: Low switchyard voltages due to excessive load demand

SEQUENCE OF INTEREST: LOOP

ACTUAL OCCURRENCE: Effective LOOP

REACTOR NAME: Rancho Seco

DOCKET NUMBER: 50-312

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 918 MWe

REACTOR AGE: 6.8 years

VENDOR: Babcock & Wilcox

ARCHITECT-ENGINEERS: Bechtel

OPERATORS: Sacramento Municipal Utility District

LOCATION: 25 miles SE of Sacramento, California

DURATION: N/A

PLANT OPERATING CONDITION: Cold shutdown

TYPE OF FAILURE: Inadequate performance;
made inoperable

DISCOVERY METHOD: Operational event

COMMENT: The safety features equipment called upon were the DGs. They performed as designed and powered the vital buses. They did not experience inadequate performance or inoperability. Also see Accession 168548, Rancho Seco, 50-312, LER 81-039, Aug. 25, 1981.