

PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 164453

Date: February 2, 1981

Title: Brief Loss of Offsite Power and Degraded Load Shed Capability at San Onofre 1

The failure sequence was:

1. With the reactor in cold shutdown, an operator intended to transfer kV buses 1-C and 2-C from auxiliary transformer C to auxiliary transformers A and B.
2. The operator opened the bus tie breaker by mistake instead of the auxiliary transformer C bus supply breakers.
3. Buses 1-C and 2-C de-energized as auxiliary transformer C de-energized, de-energizing CVCS, RHR, CCW and SWC pumps.
4. Both diesel generators started and were available for loading.
5. Bus 1C source breaker 11C02 did not open to shed loads on bus 1C because dc bus control power to the undervoltage logic scheme was deenergized due to a mispositioned switch.

Corrective action:

Power was restored by reenergizing auxiliary transformer C within seconds. The station was to implement administrative controls on safety-related dc control circuits prior to the end of the refueling outage.

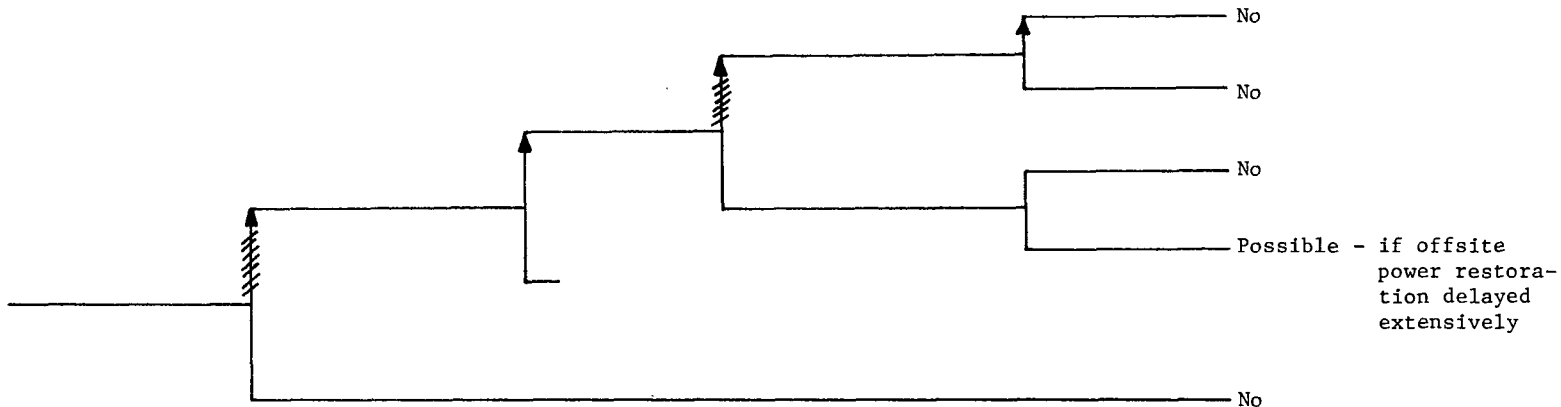
Design purpose of failed system or component:

Offsite power provides the preferred source of power to safety-related loads when the unit generator is not available.

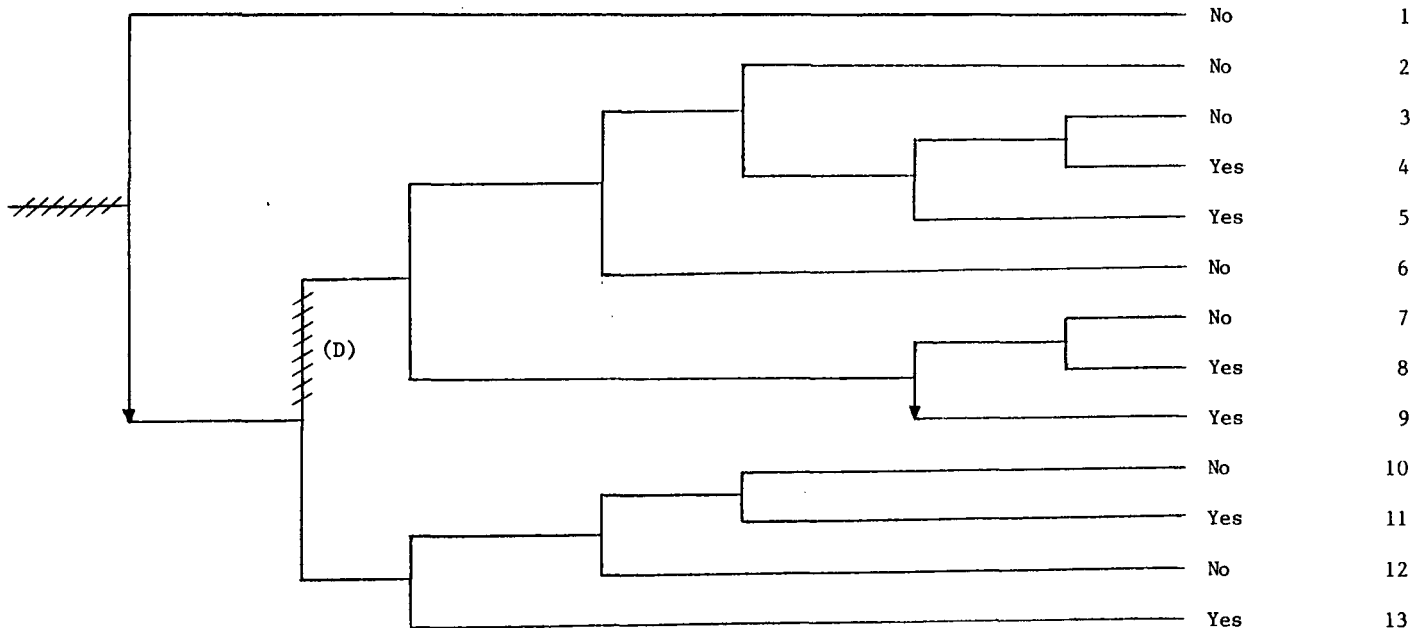
Load shedding is provided to strip safety-related buses of all large loads prior to initiation of the diesel loading sequence. This prevents overloading of the diesel due to starting surges.

Reactor in shutdown and operator intends to transfer 1-C and 2-C buses from auxiliary transformer C to auxiliary transformers A and B	Operator error results in opening of bus tie breaker in lieu of transformer C bus supply breakers	Loss of power to buses 1-C and 2-C	Diesel generators start and are available for loading. Bus 1C source breaker fails to open due to unavailable undervoltage scheme	Offsite power restored
---	---	------------------------------------	---	------------------------

Potential Severe Core Damage



Loss of Offsite Power	Turbine Generator Runs Back and Assumes House Loads	Emergency Power	Auxiliary Feedwater and Secondary Heat Removal	PORV Demanded	PORV or PORV Isolation Valve Closure	High Pressure Injection	Long Term Core Cooling	Potential Severe Core Damage	Sequence No.
-----------------------	---	-----------------	--	---------------	--------------------------------------	-------------------------	------------------------	------------------------------	--------------



NSIC 164453 - Sequence of Interest for Brief Loss of Offsite Power and Degraded Load Shed at San Onofre 1

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 164453

LER NO.: 80-038 Rev. 1

DATE OF LER: February 2, 1981

DATE OF EVENT: November 22, 1980

SYSTEM INVOLVED: Offsite power

COMPONENT INVOLVED: 4 kV bus circuit breakers

CAUSE: Operator error

SEQUENCE OF INTEREST: LOOP

ACTUAL OCCURRENCE: LOOP and degraded load shed capability

REACTOR NAME: San Onofre 1

DOCKET NUMBER: 50-206

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 436 MWe

REACTOR AGE: 13.4 years

VENDOR: Westinghouse

ARCHITECT-ENGINEERS: Bechtel

OPERATORS: Southern California Edison

LOCATION: 5 miles south of San Clemente, California

DURATION: N/A

PLANT OPERATING CONDITION: Cold shutdown

TYPE OF FAILURE: Failed to start

DISCOVERY METHOD: Operational event

COMMENT: The utility believes the dc control switch was mispositioned during the current refueling outage, although this cannot be confirmed. See also NSIC No. 161910 (San Onofre, 50-206, LER 80-038, Dec. 9, 1980).