PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 137543

Date: April 13, 1978

Title: Diesel Generator Fails to Start Following a Loss of All Offsite Power at Calvert Cliffs 1

The failure sequence was:

1. With the plant shutdown, switchyard breaker protective relaying automatically opened the switchyard breakers, resulting in a loss of offsite power.
2. Diesel generator 11 failed to start.
3. Diesel generator 12 started and provided power to safety-related loads.

Corrective action:

None - the cause of the diesel-generator failing to start was not determined.

Design purpose of failed system or component:

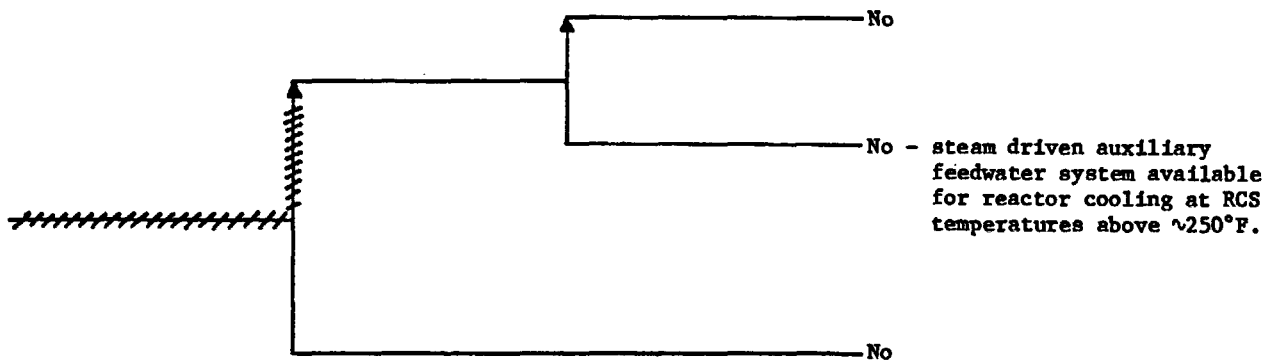
1. Offsite power provides the preferred source of power to safety-related equipment when the unit generator is not operating.
2. The diesel-generators provide a standby source of power to safety related loads when neither the unit generator nor offsite power is available.

Unavailability of system per WASH 1400:* offsite power: 2×10^{-5}/hr
onsite power: 1×10^{-2}/D

Unavailability of component per WASH 1400:* diesel generator: 3×10^{-2}/D

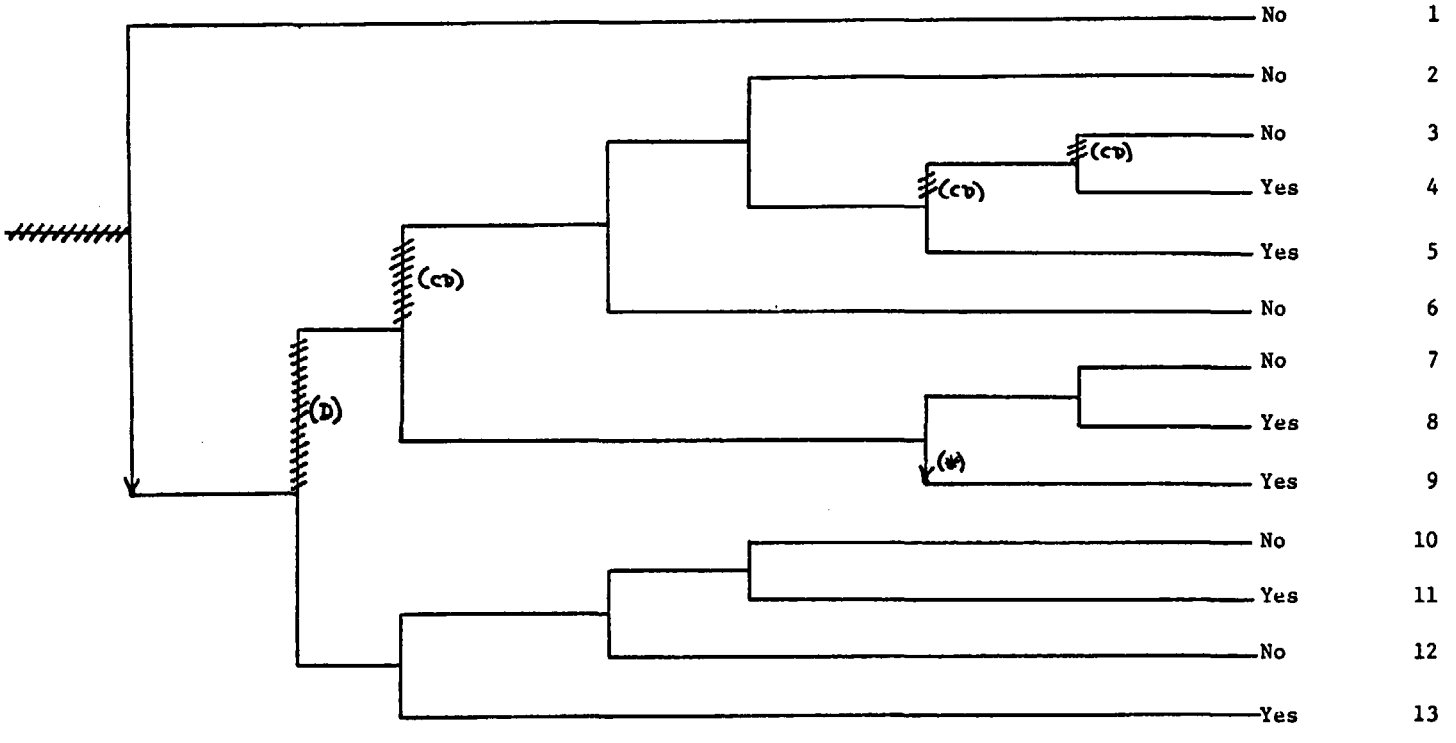
*Unavailabilities are in units of per demand D^{-1}. Failure rates are in units of per hour HR^{-1}.

With the Reactor Shutdown, Switchyard Breaker Protection Relaying Automatically Opened Breakers, Resulting in a Loss of Offsite Power	Diesel-Generator 11 Fails to Start	Diesel-Generator 12 Starts and Provides Power to Safety-Related Loads	Potential Severe Core Damage



NSIC 137543 — Actual Occurrence for Diesel Generator Fails to Start Following a Loss of All Offsite Power at Calvert Cliffs 1

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.
								No	1
								No	2
								No	3
								Yes	4
								Yes	5
								No	6
								No	7
								Yes	8
								Yes	9
								No	10
								Yes	11
								No	12
								Yes	13



NSIC 137543 — Sequence of Interest for Diesel Generator Fails to Start Following a Loss of All Offsite Power at Calvert Cliffs 1

*Not included in mitigation procedures.

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 137543

DATE OF LER: April 14, 1978

DATE OF EVENT: April 13, 1978

SYSTEM INVOLVED: offsite power, onsite power

COMPONENT INVOLVED: diesel generator

CAUSE: failure to start

SEQUENCE OF INTEREST: loss of offsite power

ACTUAL OCCURRENCE: loss of offsite power while shutdown

REACTOR NAME: Calvert Cliffs 1

DOCKET NUMBER: 50-317

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 845 MWe

REACTOR AGE: 3.5 yr

VENDOR: Combustion Engineering

ARCHITECT-ENGINEERS: Bechtel

OPERATORS: Baltimore Gas & Electric Co.

LOCATION: 40 miles south of Annapolis, Md.

DURATION: N/A

PLANT OPERATING CONDITION: shutdown

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

DISCOVERY METHOD: during operation

COMMENT: —