PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 167624

Date: July 14, 1981

Title: Loss of Offsite Power and Failure of a Diesel Generator to Start at Crystal River 3

The failure sequence was:

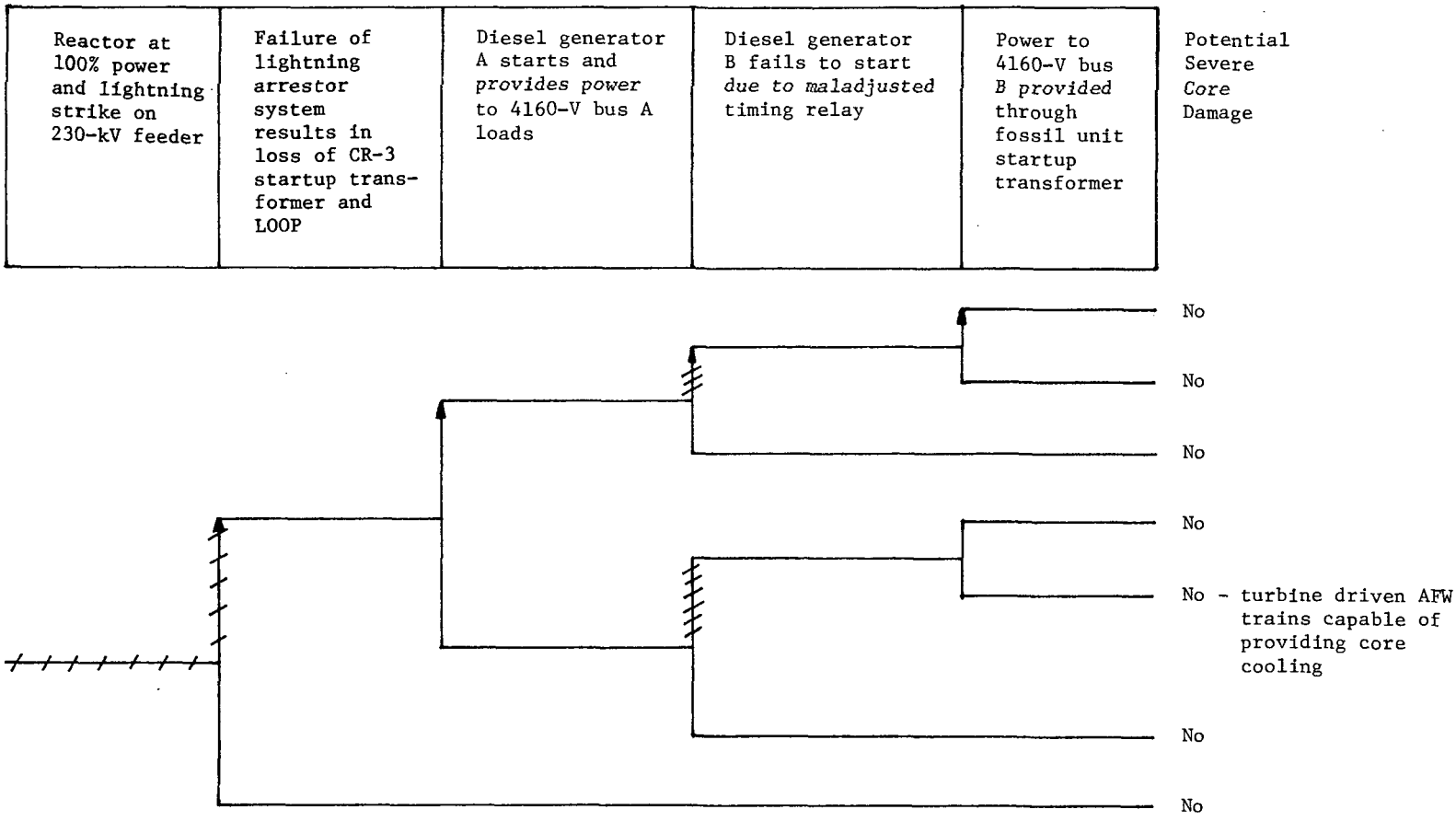
1. With the reactor at 100% power, lightning struck the 230 kV feeder line.
2. The lightning arrestor system failed to prevent loss of the CR-3 startup transformer, resulting in loss of all ac power.
3. Diesel generator A started and loaded the A 4169 volt bus.
4. Diesel generator B failed to start due to a maladjusted timing relay. Power was provided to the B 4180 volt bus from a fossil plant startup transformer via manual connection by the operator.
5. The "B" DG was successfully started manually about 10 minutes into the transient and was allowed to run on standby until Unit 3 transformer was energized.

Corrective action:

Offsite power was restored approximately 4-6 h after the loss of offsite power. The diesel was successfully started about 10 minutes into the transient but was not connected to the buses. The diesel timing relay was readjusted and incorporated into the surveillance program.

Design purpose of failed system or component:

Offsite power provided the preferred source of power to safety-related loads when the unit generator is unavailable. The diesel generators provide power to the safety-related buses when both offsite power and the unit generator are unavailable.



NSIC 167624 - Actual Occurrence for Loss of Offsite Power and Failure of a Diesel Generator to Start at Crystal River 3

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
							(CD)	No	3
						(CD)		Yes	4
								Yes	5
				(CD)				No	6
							(CD)	No	7
								Yes	8
								Yes	9
								No	10
								Yes	11
			(D)					No	12
(F)								Yes	13

NSIC 167624 - Sequence of Interest for Loss of Offsite Power and Diesel Generator Failure to Start at Crystal River 3

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 167624

LER NO.: 81-033

DATE OF LER: July 14, 1981

DATE OF EVENT: June 16, 1981

SYSTEM INVOLVED: Offsite power, emergency power

COMPONENT INVOLVED: Startup transformer, diesel generator

CAUSE: Lightning strike resulted in loss of the startup transformer, timing relay maladjustment resulted in diesel failure to start

SEQUENCE OF INTEREST: LOOP

ACTUAL OCCURRENCE: LOOP plus diesel failure to start

REACTOR NAME: Crystal River 3

DOCKET NUMBER: 50-302

REACTOR TYPE: PWR

DESIGN ELECTRICAL RATING: 825 MWe

REACTOR AGE: 4.4 years

VENDOR: Babcock & Wilcox

ARCHITECT-ENGINEERS: Gilbert Associates

OPERATORS: Florida Power Corporation

LOCATION: Red Level, Florida

DURATION: N/A

PLANT OPERATING CONDITION: 100% power

TYPE OF FAILURE: Failed to start;
made inoperable:

DISCOVERY METHOD: Operational event

COMMENT: See also NSIC 167119 (Crystal River 3, 50-302, LER 81-030, July 1, 1981).