PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 39380

Date: December 8, 1971

Title: Safety Valve Operation After Feedwater Transient at Dresden 3

The failure sequence was:

1. Loss of the 3C condensate booster pump initiated a feedwater transient.
2. The 3B feedwater pump auto-started and was used to recover water level.
3. The 3B feedwater regulating valve locked out in the open position and the flow on light failed to indicate this situation.
4. Within 2 minutes and 45 seconds the water level had reached the main steamline causing a safety valve to actuate which resulted in pressurizing the drywell.
5. During the transient low power range monitor cabling, one electromatic relief valve solenoid operator and piping insulation were damaged.

Corrective action:

1. All damaged equipment was repaired or replaced.
2. The feedwater control system was recalibrated and the signals verified.
3. The air system was modified by installing a 10 ft^3 accumulator.

Design purpose of failed system or component:

The feedwater regulating valve controls the amount of feedwater supplied to the reactor.

Unavailability of system per WASH 1400:* -

Unavailability of component per WASH 1400:* -

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

Condensate Booster Pump Trip Causes Of Feed-water Transient	A Turbine Trip/ Reactor Trip Occurs	The B Feedwater Pump Auto Starts And Supplies Coolant To The Reactor	The Regulator Valve Sticks Open And Overfills The Reactor Vessel. Water Blows Out The Relief Valve	The Plant Was Brought To A Safe Shutdown	Potential Severe Core Damage
					No
					Yes
					No
					No, ECCS systems available
					No
					ATWS

NSIC 39380 — Actual Occurrence of Safety Valve Actuation After Feedwater Transient at Dresden 3

Excessive Coolant Inventory	Reactor Scram	Reactor Vessel Or Turbine Isolate	Reactor Coolant Overflows Into Steam Lines, Is Discharged Through Relief Valves, Which Stick Open	Steam Line Break Due To Turbine Missiles, etc.	Long Term Core Cooling Success	Potential Severe Core Damage
					Small LOCA Initiator	
					No	
					Yes	
				MSLB		
				No		
					No	
					Yes	
				Yes		
					No	
					Yes	

NSIC 39380 — Sequence of Interest for Safety Valve Actuation After Feedwater Transient at Dresden 3

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 39380

DATE OF LER: February 22, 1972

DATE OF EVENT: December 8, 1971

SYSTEM INVOLVED: Pressure Relief, Feedwater

COMPONENT INVOLVED: Feedwater Regulator Valve

CAUSE: A mechanical failure

SEQUENCE OF INTEREST: Excessive Coolant Inventory Transient

ACTUAL OCCURRENCE: Safety valve operation after feedwater transient

REACTOR NAME: Dresden 3

DOCKET NUMBER: 50-249

REACTOR TYPE: BWR

DESIGN ELECTRICAL RATING: 794 MWe

REACTOR AGE: 0.94 yr

VENDOR: General Electric

ARCHITECT-ENGINEERS: Sargent & Lundy

OPERATORS: Commonwealth Edison

LOCATION: Nine miles East of Morris, Ill.

DURATION: N/A

PLANT OPERATING CONDITION: 100% power

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

DISCOVERY METHOD: operational transient

COMMENT: