PRECURSOR DESCRIPTION AND DATA

NSIC Accession Number: 128569

Date: July 15, 1977

Title: Safety Relief Valve Fails to Reset at Brunswick 2

The failure sequence was:

1. A turbine trip occurred which resulted in a reactor scram.
2. HPCI and RCIC initiated and injected into the reactor causing a level increase and subsequent HPCI and RCIC trip on high water level.
3. Safety relief valves were opened three times to maintain the reactor pressure below 1050 psig. On the third opening the valve failed to close.
4. RCIC was started and injected to the reactor in an attempt to recover reactor vessel level. It was of insufficient capacity so APCl was also started and the level was recovered.
5. (See next page)

Corrective action:

The grounded solenoid was rewired and retaped

Design purpose of failed system or component:

The safety relief valves are designed to control reactor pressure.

Unavailability of system per WASH 1400:* -

Unavailability of component per WASH 1400:* Relief valve failure to close: $10^{-2}/D$

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

The Failure sequence was: (Continued)

5. The division IRHR system was placed in service to cool the torus.
6. The reactor pressure decreased from 1050 to 280 in 14 minutes corresponding to a cool down rate of 136F°/hr.
7. The valve failed to reset because the solenoid assembly was grounded.

A Reactor Scram Occurred Following A Turbine Trip	HPCI/RCIC Initiated And Injected Into The Core, They Tripped Once Water Level Was Recovered	Safety Relief Valves Were Used To Control Pressure. The "B" Safety Relief Valve Stuck Open On The Third Opening	RCIC Was Manually Initiated But Was Insufficient To Maintain Water Level. HPCI Was Then Initiated And Water Level Was Again Restored	Potential Severe Core Damage
				No
				No, ADS/LPCI/CS were operable
				No
				No, ADS/LPCI/CS were operable

NSIC 128569 — Actual Occurrence of Safety Relief Valve Fails to Reseat at Brunswick 2

Loss of Coolant Accident	Reactor Maintained Subcritical	HPCI/RCIC Response Adequate	ADS/LPCI CS Response Adequate	Long Term Core Cooling	Potential Severe Core Damage	Sequence No.
Yes					No	1
					Yes	2
					No	3
					Yes	4
					Yes	5
No					Yes	6

NSIC 128569 — Sequence of Interest for Safety Relief Valve Fails to Reset at Brunswick 2

CATEGORIZATION OF ACCIDENT SEQUENCE PRECURSORS

NSIC ACCESSION NUMBER: 128569

DATE OF LER: August 3, 1977

DATE OF EVENT: July 15, 1977

SYSTEM INVOLVED: Pressure Relief

COMPONENT INVOLVED:

CAUSE: Safety Relief Valve

SEQUENCE OF INTEREST: Loss of Coolant Accident

ACTUAL OCCURRENCE: Safety Relief Valve Fails to Reset.

REACTOR NAME: Brunswick 2

DOCKET NUMBER: 324

REACTOR TYPE: BWR

DESIGN ELECTRICAL RATING: 821 MWe

REACTOR AGE: 2.4 yr

VENDOR: G.E.

ARCHITECT-ENGINEERS: United Engineers

OPERATORS: Carolina Power and Light

LOCATION: Three miles N of Southport

DURATION: N/A

PLANT OPERATING CONDITION: Reactor Scram from 75% Power

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

DISCOVERY METHOD: Operation Event

COMMENT: