NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 LICENSEE CODE: F L T P S 4 (2) LICENSE NUMBER: 0 0 - 0 0 0 0 0 - 0 0 (3) LICENSE TYPE: 4 1 1 1 1 (4) CAT (5)

CON'T 01 REPORT SOURCE: L (6) DOCKET NUMBER: 0 5 0 0 0 2 5 1 (7) EVENT DATE: 0 9 0 6 8 2 (8) REPORT DATE: 1 0 0 1 8 2 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 While operating at 100% power, the reactor coolant system experienced a
03 rapid decrease in pressure due to a failed open pressurizer spray valve.
04 The reactor was manually tripped and automatic safety injection actuated.
05 The minimum pressure reached during the transient was 1450 psig. This is
06 reportable in accordance with T.S.3.1.6.b and 6.9.2.b.2. The health and
07 safety of the public was not affected. Similar events were reported as
08 LERs 251-81-8 and 251-81-15. The unit was back on line in 39 hours.

09	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
	C B (11)	E (12)	E (13)	I N S T R U (14)	T (15)	Z (16)

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	8 2	—	0 1 3	/	0 3	L	—	0

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS (22)	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
B (18)	Z (19)	A (20)	B (21)	0 0 3 9	Y (23)	Y (24)	L (25)	F 1 3 0 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 Pressure control was regained using charging pumps and pressurizer heaters.
11 When spray valve malfunction was positively confirmed, the system was cooled
12 down to 350°F for repairs. The I/P converter on PCV-4-455C had failed. The
13 component was replaced and the valve packing was adjusted to minimize a leak
14 which may have caused the I/P converter failure.

15	FACILITY STATUS	% POWER	OTHER STATUS (30)	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION (32)
	E (28)	1 0 0 (29)	NA	A (31)	Operator observation

16	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
	Z (33)	Z (34)	NA	NA

17	PERSONNEL EXPOSURES NUMBER	TYPE	DESCRIPTION (39)
	0 0 0 (37)	Z (38)	

18	PERSONNEL INJURIES NUMBER	DESCRIPTION (41)
	0 0 0 (40)	NA

19	LOSS OF OR DAMAGE TO FACILITY TYPE (43)	DESCRIPTION
	Z (42)	NA

20	PUBLICITY ISSUED	DESCRIPTION (45)	NRC USE ONLY
	N (44)	NA	

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Additional Event Description and Probable Consequences

The reactor was at 100% power (693 MWe) and normal pressure and temperature when a pressurizer control low pressure alarm was received. It was noted that pressure was dropping rapidly and that a turbine runback had commenced due to the lowering Reactor Coolant System pressure. All pressurizer spray valves and power operated relief valves were verified to be indicating closed and pressurizer code safety valve downstream temperatures indicated that all code safety valves were closed. A manual runback was commenced to attempt to aid in restoring system pressure. All pressurizer heaters were verified to have energized automatically and pressurizer level indications showed that there was no abnormal loss of coolant occurring.

With the turbine load at about 500 MWe and reactor power at about 80% and RCS pressure between 1900 and 2000 psig and dropping, the reactor was manually tripped at 2:10 a.m. The turbine tripped automatically as a result of the reactor trip and a momentary increase in Tave, pressurizer level and RCS pressure was observed. The steam dump valves opened automatically and commenced reducing average temperature. The auxiliary feedwater pumps started to restore steam generator water level. The RCS pressure continued to drop rapidly and at 1723 psig, safety injection automatically initiated. Emergency Operating Procedure E-0 was followed and all safeguards equipment was verified to have operated as designed. RCS pressure continued to drop rapidly and was approaching the shutoff head of the high safety injection pumps. All steam generator pressures were verified to be at their expected values for the plant conditions. Containment sump level, pressure, and radiation levels were at the same values as prior to the event.

With no indication of a loss of primary or secondary coolant, it was suspected that a pressurizer spray valve may have failed open and caused the lowering RCS pressure. At a RCS pressure of 1450 psig, the 4B and 4C RCPs were stopped in order to eliminate the possibility of spray flow to the pressurizer. The safety injection signal was reset and all pressurizer heaters were energized to attempt to restore RCS pressure. Steam generator water levels had returned to the narrow range band and auxiliary feedwater flow was reduced to maintain steam generator levels. The auxiliary feedwater flow control valve (FCV-2817) to the 4B steam generator would not close and was causing a RCS cooldown. Charging was commenced to maintain pressurizer level and the auxiliary feedwater pumps were secured. A condensate pump and a feedwater pump were placed in service and steam generator levels were controlled with the feedwater bypass valves. The RCS cooldown was stopped at about 515 F with RCS pressure at 1450 psig. Unit 4's Pressure-Temperature limitations were not approached. There was no indication of any safety injection flow to the RCS cold legs. With the feedwater flow secured to the steam generators, core decay heat caused RCS temperature to begin to increase. RCS pressure also began to increase and was restored to greater than 1723 psig at 2:45 a.m. When the subcooling conditions of Emergency Procedure E-0 were met, the safety injection pumps were secured. Containment radiation levels and sump levels were verified to be at their pre-event values. Phase A containment isolation was reset and normal letdown flow established in order to control pressurizer level. RCS temperature was stabilized at the no load value and RCS pressure continued to increase approaching 2000 psig. The 4B and 4C RCPs were restarted in an attempt to restore normal forced circulation to all loops. When the 4B RCP was started, it was noted that RCS pressure began to fall again so the 4B RCP was immediately secured and pressure again began to increase. When it was noted that difficulty was experienced lowering pressurizer level to normal values without excessively lowering RCS pressure, the 4C RCP was also secured because its spray valve

was also suspected to be open. Subsequently, RCS pressure and pressurizer level were restored to their normal hot shutdown values. A containment entry was made in order to verify the position of the B and C loop spray valves. During the initial entry to the top of the pressurizer, it was noted that a steam leak existed from the packing of one of the pressurizer spray valves making entry to check the valve position not possible. A RCS cooldown to 350 F and 400 psig was commenced in order to make the top of the pressurizer more accessible. A subsequent entry to the top of the pressurizer resulted in locating the steam leak source to be the packing of pressurizer spray valve PCV-4-455A. Spray valve PCV-4-455A was also found to be 20% open even though the electrical signal called for the valve to be closed. This event is reportable in accordance with T.S.3.1.6.b and 6.9.2.b.2. The health and safety of the public was not affected. Similar events were reported as LERs 251-81-8 and 251-81-15.

Additional Cause Description and Corrective Action

The cause of this event was determined to be the failure of the I/P converter on PCV-4-455A. The I/P converter was replaced. The valve packing was also adjusted to minimize the leak which may have been the cause of the I/P converter failure. The valve bellows have also failed and are scheduled to be replaced during the Unit 4 steam generator repair outage. Until the repairs are made, valve leakage will be controlled by adjusting the packing.

As a precautionary measure, the I/P converter on PCV-4-455B was also replaced. Startup was initiated on 9/7/82 and the unit was back on line after being down a total of 39 hours.

The auxiliary feedwater flow control valve, FCV-2817, was inspected to determine why it would not close by control room operation. The valve positioner was found out of calibration. It was recalibrated and proper closure of the valve was demonstrated on 9/8/82.

Component Data

Pressurizer spray valve PCV-4-455A is a 4-inch globe valve manufactured by Copes-Vulcan. The model number is D-100-160-2½. The I/P converter was manufactured by Fisher Controls. FCV-2817, the auxiliary feedwater flow control valve, is a 3-inch globe valve manufactured by Bailey. The model number is VBA-752A.