FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO
P. O. BOX 361
PLATTEVILLE, COLORADO 80651

REPORT NO. 50-267/78-33/03-L-0

Final

IDENTIFICATION OF OCCURRENCE:

During routine surveillance testing of the steam pipe rupture detection system, one of the high temperature bistable switches did not trip.

This resulted in operation under a degraded mode permitted by LCO 4.4.1 and is reportable per Fort St. Vrain Technical Specification AC 7.5.2(b)2.

EVENT DESCRIPTION:

On October 27, 1978, while operating at 12% reactor power with no electrical output, plant instrument personnel performing routine surveillance testing, noted that one of the three bistables for high temperature under the PCRV did not trip.

Two other redundant bistables were available as indicated by a successful test.

See Figure 1 (typical for redundant channels). A combination of ultrasonic noise, detected by noise detectors, (1) , in conjunction with a pressure rise, detected by pressure differential switches, (2) , or a temperature rise, detected by temperature switches, (3) , indicates a pipe rupture. If a pipe rupture occurs, the loop shutdown logic, (4) , initiates a loop shutdown, (5) , through a series of solid state electronics and relays.

The inoperable channel was placed in a tripped condition in compliance with LCO 4.4.1 requirements and was returned to service following repair and test.

CAUSE DESCRIPTION:

The cable between the temperature element and the temperature switch was open due to corrosion at a terminal board, caused by moisture leaking into the junction box.

CORRECTIVE ACTION:

The terminal board and junction box have been replaced and the junction box sealed with silicone to prevent a recurrence of the problem.

No further corrective action is anticipated or required.

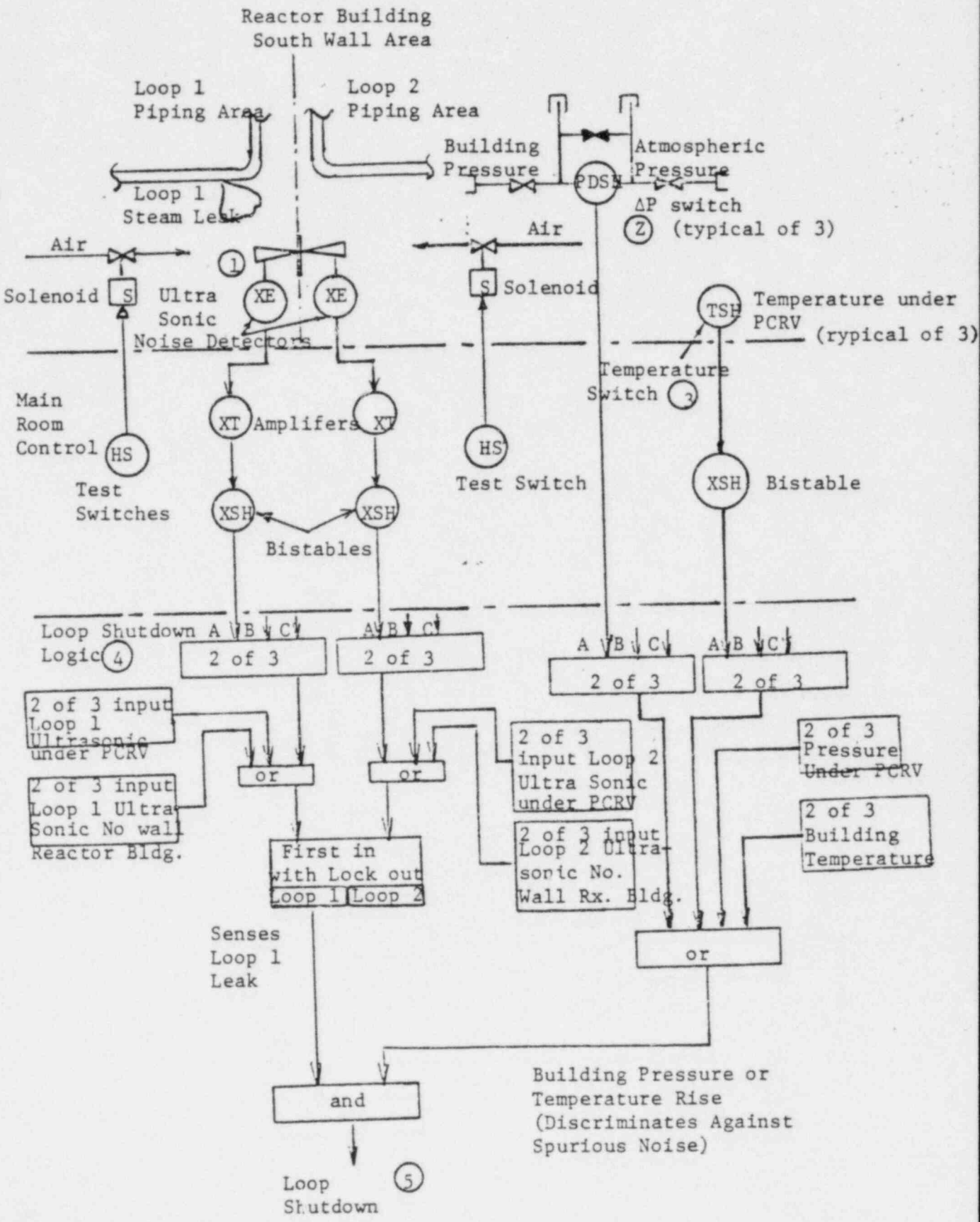
Reactor Building
South Wall Area
Loop 1
Piping Area
Loop 2
Piping Area
Loop 1
Steam Leak
Building
Pressure
Atmospheric
Pressure
PDSH
ΔP switch
(Z) (typical of 3)
Air
Air
1
Solenoid
S
Ultra
Sonic
Noise Detectors
XE
XE
S
Solenoid
TSH
Temperature under
PCRV
(rypical of 3)
Temperature
Switch 3
Main
Room
Control
HS
Test
Switches
XT
Amplifers
XT
HS
Test Switch
XSH
Bistable
XSH
XSH
Bistables
Loop Shutdown
Logic 4
A B C
A B C
2 of 3
2 of 3
A B C
A B C
2 of 3
2 of 3
2 of 3 input
Loop 1
Ultrasonic
under PCRV
2 of 3 input
Loop 1 Ultra
Sonic No wall
Reactor Bldg.
or
or
2 of 3
input Loop 2
Ultra Sonic
under PCRV
2 of 3 input
Loop 2 Ultra
sonic No.
Wall Rx. Bldg.
2 of 3
Pressure
Under PCRV
2 of 3
Building
Temperature
First in
with Lock out
Loop 1
Loop 2
Senses
Loop 1
Leak
or
and
Building Pressure or
Temperature Rise
(Discriminates Against
Spurious Noise)
Loop
Shutdown
5

Figure 1

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Reviewed by:
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Approved by: Don Warembourg
Don Warembourg
Manager, Nuclear Production

LICENSEE EVENT REPORT

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

0 1	C O F S V 1 (2) LICENSEE CODE; 0 0 0 0 0 0 0 0 0 0 0 (3) LICENSE NUMBER; 4 1 1 2 0 (4) LICENSE TYPE; CAT (5)
CON'T 0 1	REPORT SOURCE L (6); DOCKET NUMBER 0 5 0 0 0 2 6 7 (7); EVENT DATE 1 0 2 7 7 8 (8); REPORT DATE 1 1 2 2 7 8 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 During routine surveillance of the steam pipe rupture detection system one of the
0 3 three bistables for high temperature under the PCRV did not trip. Redundant systems
0 4 were available and operable. Event was not repetitive. Cable terminal board in
0 5 junction box was replaced and the surveillance test was successfully completed. No
0 6 accompanying occurrences, no effects on public health.
0 7
0 8

	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
0 9	I B (11)	E (12)	D (13)	I N S T R U (14)	X (15)	Z (16)

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	7 8	—	0 3 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
C (18)	Z (19)	Z (20)	Z (21)	0 0 0 0	Y (23)	N (24)	N (25)	X 9 9 9 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 A cable terminal board at the junction box was open circuited due to corrosion.
1 1 Corrosion was the result of humidity and temperature in ambient atmosphere. Terminal
1 2 board and junction box was replaced and surveillance test successfully completed.
1 3 No further corrective action required.
1 4

	FACILITY STATUS	% POWER	OTHER STATUS (30)	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION (32)
1 5	E (28)	0 1 2 (29)	N/A	B (31)	Surveillance Test

	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
1 6	Z (33)	Z (34)	N/A	N/A

PERSONNEL EXPOSURES

	NUMBER	TYPE	DESCRIPTION (39)
1 7	0 0 0 (37)	Z (38)	N/A

PERSONNEL INJURIES

	NUMBER	DESCRIPTION (41)
1 8	0 0 0 (40)	N/A

LOSS OF OR DAMAGE TO FACILITY (43)

	TYPE	DESCRIPTION
1 9	Z (42)	N/A

PUBLICITY

	ISSUED	DESCRIPTION (45)	NRC USE ONLY
2 0	N (44)	N/A	

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