

## LICENSEE EVENT REPORT

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

0	1	C	O	F	S	V	1	2	0	0	-	0	0	0	0	0	0	-	0	0	3	4	1	1	2	1	0	4			5
7	8	9	LICENSEE CODE						14	15	LICENSE NUMBER										25	26	LICENSE TYPE				30	57	CAT	58	

CON'T

0	1	L	6	0	5	0	0	0	2	6	7	7	0	8	0	6	8	3	8												9
7	8	REPORT SOURCE		60	61	DOCKET NUMBER						68	69	EVENT DATE				74	75	REPORT DATE				80							

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | During the period August 6, 1983 to August 8, 1983, with the reactor operating at

0 3 | steady state power, instrument cables carrying the speed signals from the helium

0 4 | circulators to the plant protective system (PPS) experienced several individual

0 5 | impedance variations. The minimum degree of redundancy associated with the

0 6 | high speed trip can not be met when a speed cable experiences impedance variations.

0 7 | These events constituted operation in degraded modes of LCO 4.4.1 and were reportable

0 8 | per AC 7.5.2(b)2. No similar reports.

0	9	I	B	11	E	12	X	13	E	L	E	C	O	N	14	Z	15	Z	16												
7	8	SYSTEM CODE		9	10	CAUSE CODE		11	CAUSE SUBCODE		12	COMPONENT CODE				13	COMP. SUBCODE		19	VALVE SUBCODE		20	REVISION NO.				32				
LER/RO REPORT NUMBER		EVENT YEAR		SEQUENCE REPORT NO.		OCCURRENCE CODE		REPORT TYPE		ATTACHMENT SUBMITTED		NPRD-4 FORM SUB.		PRIME COMP. SUPPLIER		COMPONENT MANUFACTURER															
17		8 3		0 3 0		0 3		X		Y		N		L		P 4 2 2															
ACTION TAKEN		FUTURE ACTION		EFFECT ON PLANT		SHUTDOWN METHOD		HOURS		ATTACHMENT SUBMITTED		NPRD-4 FORM SUB.		PRIME COMP. SUPPLIER		COMPONENT MANUFACTURER															
18		7		7		7		0 0 0 0		Y		N		L		P 4 2 2															

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 | A steam leak in the vicinity of junction boxes containing the affected cables caused

1 1 | the ambient temperature to increase significantly and erratic speed signals resulted.

1 2 | Spare cables were placed in service and additional ventilation was provided in the

1 3 | area of the junction boxes. The reheat steam leak was repaired and faulty sections of

1 4 | seven speed cables were replaced. No further corrective action is anticipated or

1 5 | required.

1	5	E	28	0	7	0	29	N/A	A	31	Operator Observation	32																		
7	8	FACILITY STATUS		9	% POWER		10	OTHER STATUS		30	METHOD OF DISCOVERY		44	DISCOVERY DESCRIPTION				45	46	LOCATION OF RELEASE				35						
ACTIVITY CONTENT		RELEASED OF RELEASE		AMOUNT OF ACTIVITY		PERSONNEL EXPOSURES		PERSONNEL INJURIES		LOSS OF OR DAMAGE TO FACILITY		PUBLICITY		ISSUED DESCRIPTION		NRC USE ONLY														
16		7		7		0 0 0		0 0 0		Z		Z		N/A		N/A														

1	7	0	0	0	37	Z	38	N/A																						
7	8	PERSONNEL EXPOSURES		9	TYPE		10	DESCRIPTION		39	PERSONNEL INJURIES		40	DESCRIPTION		41	LOSS OF OR DAMAGE TO FACILITY		42	DESCRIPTION		43	PUBLICITY		44	ISSUED DESCRIPTION		45		
17		0 0 0		37		Z		38		N/A		0 0 0		40		N/A		Z		42		N/A		N		44		N/A		

1	8	0	0	0	40	N/A																							
7	8	PERSONNEL INJURIES		9	DESCRIPTION		40	LOSS OF OR DAMAGE TO FACILITY		41	PUBLICITY		42	ISSUED DESCRIPTION		43	NRC USE ONLY												
18		0 0 0		40		N/A		Z		42		N/A		N		44		N/A											

1	9	Z	42	N/A																										
7	8	PERSONNEL INJURIES		9	DESCRIPTION		40	LOSS OF OR DAMAGE TO FACILITY		41	PUBLICITY		42	ISSUED DESCRIPTION		43	NRC USE ONLY													
19		Z		42		N/A		Z		42		N/A		N		44		N/A												

2	0	N	44	N/A																									
7	8	PERSONNEL INJURIES		9	DESCRIPTION		40	LOSS OF OR DAMAGE TO FACILITY		41	PUBLICITY		42	ISSUED DESCRIPTION		43	NRC USE ONLY												
20		N		44		N/A		Z		42		N/A		N		44		N/A											

NAME OF PREPARER Jim Eggebroten

Jim Eggebroten

PHONE: (303) 785-2224

REPORT DATE: October 3, 1984

REPORTABLE OCCURRENCE 83-030

ISSUE 1

OCCURRENCE DATE: August 6, 1983

Page 1 of 4

FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO  
16805 WELD COUNTY ROAD 19 1/2  
PLATTEVILLE, COLORADO 80651-9298

REPORT NO. 50-267/83-030/03-X-1

Final

IDENTIFICATION OF  
OCCURRENCE:

On several occasions during the period from August 6, 1983, through August 8, 1983, with the reactor operating at power, the helium circulator speed cables demonstrated impedance variations. These impedance variations resulted in the Circulator Speed-High (Steam) channel being inoperable and therefore, constituted operation in degraded modes of LCO 4.4.1, Table 4.4-3, note (f). These events were reportable per Fort St. Vrain Technical Specification AC 7.5.2(b)2.

EVENT  
DESCRIPTION:

On August 6, 1983, at approximately 0200 hours with the reactor operating near 70% power, the impedance on one circulator speed cable on the 1C helium circulator began to drift. The impedance variation caused the input voltage to drop to zero initiating a Circulator Speed-Low (Steam) Plant Protective System (PPS) single channel trip. However, the loss of voltage to the PPS module associated with the Circulator Speed-High (Steam) inhibited the channel from tripping on high speed since the high speed trip occurs on increasing voltage. The high speed trip channel was, therefore, inoperable. LCO 4.4.1, Table 4.4-3, note (f), states "The inoperable channel must be in the tripped condition, unless the trip of the channel will cause the protective action to occur." The Circulator Speed-High (Steam) circuitry, however, does not contain direct provisions to place that particular circuit in a "tripped" condition without replacing the module with a module which has been wired to initiate the trip signal. Hence, the minimum degrees of redundancy (LCO 4.4.1, Table 4.4-3) was not met.

On August 6, 1983, at approximately 1000 hours with the reactor operating near 70% power, the impedance of a circulator speed cable on the 1C helium circulator began to vary once again. The impedance variation caused the same plant actions (low speed trip, high speed inoperable) as the first occurrence.

On August 6, 1983, at approximately 2230 hours with the reactor operating near 70% power, a cable impedance variation occurred on the 1D helium circulator circuitry. Again, a low speed trip signal was initiated, however, the high speed trip associated with that cable was inoperable.

On August 7, 1983, at approximately 0130 hours with the reactor operating near 70% power, the impedance of a speed cable on the 1C helium circulator circuit began to vary. The same actions occurred as in the previous events.

On August 7, 1983, during the morning hours (around 0900 hours) individual speed cable impedance variations on both the 1C and 1D helium circulators caused the same actions as described above.

Again on August 7, 1983, at approximately 1405 hours, the speed indication for the 1D helium circulator became erratic. Results Department personnel were called out to stand by in case of another speed cable impedance variation. No speed cable impedance variation occurred on this occasion.

On August 8, 1983, at approximately 0530 hours with the reactor operating near 70% power, the impedance of a speed cable on the 1D helium circulator circuit began to vary. The same actions occurred as in the previous events.

CAUSE  
DESCRIPTION:

| Component Failure.

The plant was experiencing above normal temperatures in the vicinity of the Prestressed Concrete Reactor Vessel (PCRV) bottom head. The high temperatures were a result of a reheat steam leak which was present on a steam generator module in the area. The speed cable impedance variations were attributed to the high temperatures that were experienced in the bottom head region as there are several junction boxes associated with the speed cables in that area. Other equipment located in the same vicinity, however, did not show any abnormal effects.

CORRECTIVE  
ACTION:

| During each event, plant instrument technicians were called to investigate/evaluate. In some of the occurrences, affected speed cables were interchanged with available spares, and in others, erratic speed signals ceased, and the cables were returned to service.

| Additional ventilation was installed in the high temperature area to  
| assist in maintaining an acceptable environment for the local  
| equipment. After placement of the ventilation ducts, no further  
| cable problems were observed.

| The reheat steam leak on the steam generator module was repaired via  
| Public Service Company Change Notice 1717.

| Faulty sections of seven speed cables were replaced via Public  
| Service Company Change Notice 1776 and associated Controlled Work  
| Procedures.

| No further corrective action is anticipated or required.

Prepared By: Duane L. Frye  
Duane L. Frye  
Senior Technical Services Technician

Reviewed By: Jim Eggebroten  
Jim Eggebroten  
Technical Services Engineering Supervisor

Reviewed By: C. H. Fuller  
C. H. Fuller  
Station Manager

Approved By: J. W. Gahm  
J. W. Gahm  
Manager, Nuclear Production