

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fort St. Vrain, Unit No. 1										DOCKET NUMBER (2) 05000267										PAGE (3) 1 OF 4									
TITLE (4) "A" Helium Circulator Trip On Buffer-Mid-Buffer Differential Pressure																													
EVENT DATE (5)			LER NUMBER (6)						REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																	
MONTH DAY YEAR			SEQUENTIAL NUMBER			REVISION NUMBER			MONTH DAY YEAR			FACILITY NAMES									DOCKET NUMBER (5)								
			014									N/A									05000								
081185			013			00091085															05000								
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																										
N			20.402(b)						20.406(a)						80.73(a)(2)(iv)						73.71(b)								
POWER LEVEL (10)			20.406(a)(1)(i)						80.36(a)(1)						80.73(a)(2)(v)						73.71(a)								
0100			20.406(a)(1)(ii)						80.36(a)(2)						80.73(a)(2)(vi)						X OTHER (Specify in Abstract below and in Text, NRC Form 365A)								
			20.406(a)(1)(iii)						80.73(a)(2)(i)						80.73(a)(2)(vii)(A)						Voluntary								
			20.406(a)(1)(iv)						80.73(a)(2)(ii)						80.73(a)(2)(vii)(B)														
			20.406(a)(1)(v)						80.73(a)(2)(iii)						80.73(a)(2)(viii)														
LICENSEE CONTACT FOR THIS LER (12)																													
NAME															TELEPHONE NUMBER														
Jim Eggebroten, Superintendent, Technical Services Eng.															AREA CODE 31013 718151-121213														
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																													
CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC			CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC		
B			CIB			PIDICIV			M11210			N																	
SUPPLEMENTAL REPORT EXPECTED (14)															EXPECTED SUBMISSION DATE (15)														
YES (If yes, complete EXPECTED SUBMISSION DATE)															X NO														
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																													
<p>On August 11, 1985, with the reactor shutdown, "B" and "D" Circulators operating on steam, "A" Circulator tripped on high buffer-mid-buffer differential pressure. This single circulator trip occurred while "A" Circulator was self-turbining, with both its steam and water turbines isolated.</p> <p>The cause of the high buffer-mid-buffer ΔP was abnormal cycling of the bearing water main drain control valve. "A" Circulator is presently shutdown for investigation of this problem.</p> <p>Single circulator trips are initiated for equipment protection purposes due to abnormal indications associated with a single circulator. Single actuations of the Circulator Trip circuitry are not considered to require Nuclear Regulatory Commission notification nor Licensee Event Reporting in accordance with the requirements of 10CFR50.72 and 50.73. However, due to recent concerns expressed by the Senior Resident Inspector, the Licensee will voluntarily report actuations of the Circulator Trip circuitry, until this item can be reviewed further with the appropriate Regional and Washington Offices.</p>																													
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1) Fort St. Vrain, Unit No. 1	DOCKET NUMBER (2) 0 5 0 0 0 2 6 7 8 5 - 0 1 3 - 0 1 0 0 2 OF 0 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 368A's) (17)

EVENT DESCRIPTION:

Prior to the experienced circulator trip action, the reactor was shutdown, with "B" and "D" circulators operating on steam, and "A" Circulator self-turbining with its steam and water turbines isolated. At 0030 hours, on August 11, 1985, the Prestressed Concrete Reactor Vessel (PCRVR) pressure was being increased from the helium storage system. Normally, the individual circulator buffer supply and bearing water controls automatically adjust for gradual changes in system parameters. However, problems were experienced with the bearing water main drain controller on "A" Circulator, causing the buffer-mid-buffer ΔP to fluctuate. The Reactor Operator took action to manually control the main drain and buffer helium return flows, but at approximately 0110 hours, "A" Circulator tripped on high buffer-mid-buffer ΔP . The trip of "A" Circulator had no effect on the remaining operating circulators nor on plant operation.

ANALYSIS:

Normal PCRVR pressure evolutions do not require manual control of either buffer helium return or main drain flows. Recent modifications to the main drain control valve on "A" Circulator have resulted in periodic cycling of the valve. Under the experienced conditions, operator actions to decrease buffer helium return flow and decrease main drain flow were appropriate for purposes of decreasing buffer-mid-buffer ΔP . The cycling behavior of the main drain control valve initiated the original ΔP increase and then continued to complicate the operator recovery attempts.

As each circulator's auxiliary system controls (buffer helium and bearing water) operate independently of the other circulators, this trip had no effect on "B" and "D" circulator operation. The circulator auxiliaries were designed with independence and redundancy so as to preclude a single failure from affecting more than one circulator. Also, with the redundancies provided by the four circulators, it is considered incredible in the FSAR design basis that all circulators would become simultaneously inoperable (FSAR Section 14.4.1).

The Fort St. Vrain Technical Specifications require that one circulator be operable in each loop during power operation, as safe shutdown cooling capability is assured with only one operable circulator. Thus, single actuations of the Circulator Trip circuitry to shut down a single circulator are considered an equipment protective action, and are specifically stated as such in the Basis of Technical Specification LCO 4.4.1.c. When the reporting requirements of 10CFR50.72 and 50.73 were initially proposed, the term Reactor Protection System (RPS) was not recognized nor defined for this plant. Therefore, independent, extensive evaluations were performed considering the Fort St. Vrain licensing basis, industry practice, and Nuclear Regulatory Commission guidance. These evaluations determined that single actuations of the Circulator Trip circuitry do not require Nuclear Regulatory Commission notification nor Licensee Event Reporting in accordance with the requirements of 10CFR50.72 and 50.73.

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CAUSE:

The automatic trip of "A" Circulator on high buffer-mid-buffer ΔP was due to cycling of the main drain control valve. An increase in main drain control valve position decreases circulator bearing cavity pressure, thereby increasing buffer-mid-buffer ΔP .

CORRECTIVE ACTION:

Investigation and resolution of the "A" Circulator main drain control valve operation is presently being pursued in the interest of improved operation. However, this corrective action is not considered to be safety significant nor impact public health and safety.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Mark Joseph

Mark Joseph
Technical Services Engineer

Jim Eggebroten

Jim Eggebroten
Superintendent, Technical Services Eng.

Licensing Review By: *Duane L. Fye*

Jim Gramling

Jim Gramling
Nuclear Licensing-Operations Supervisor

C. H. Fuller

C. H. Fuller
Station Manager

J. W. Gahm by [Signature]

J. W. Gahm
Manager, Nuclear Production



Public Service

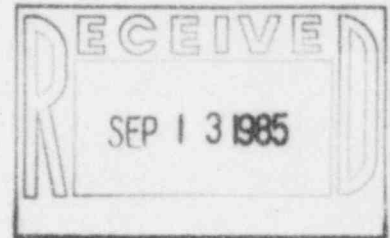
16805 WCR 19 1/2, Platteville, Colorado 80651

Public Service
Company of Colorado

September 10, 1985
Fort St. Vrain
Unit No. 1
P-85318

Regional Administrator
Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Attn: Mr. E. H. Johnson



Docket No. 50-267

SUBJECT: Licensee Event Report
85-014, Final Report

REFERENCE: Facility Operating
License No. DPR-34

Dear Mr. Johnson:

Enclosed please find a copy of Licensee Event Report
No. 50-267/85-014, Final, submitted per the requirements of
10 CFR 50.73(a)(2)(iv).

Sincerely,

J. W. Gahm by [Signature]

J. W. Gahm
Manager, Nuclear Production

Enclosure

cc: Director, MIPC

JWG/djm

85-819

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Return
original
TO RIV
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