

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Fort St. Vrain, Unit No. 1

DOCKET NUMBER (2)  
0 5 0 0 0 2 6 7

PAGE (3)  
1 OF 0 4

TITLE (4)  
HOT REHEAT TEMPERATURE HIGH SCRAM DUE TO OPERATOR INATTENTION

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)															
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)													
1	2	2	5	8	7	8	7	0	3	1	0	0	0	1	2	5	8	8	N/A	0	5	0	0	0

OPERATING MODE (9) N

POWER LEVEL (10) 0 2 9

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.38(e)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.38(e)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: Mark A. Joseph, Technical Services Supervisor

TELEPHONE NUMBER: 3 0 3 6 2 0 - 1 2 0 3

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (if yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 1328 hours on December 25, 1987, with the reactor operating at 29 percent power, a hot reheat temperature high scram occurred. The flux controller [JD]\*, which controls hot reheat steam temperature, had been placed in manual in response to a plant transient and power reduction the previous day. A xenon transient as a result of the power reduction was causing core helium outlet temperatures, hot reheat, and main steam temperatures to slowly increase. The reactor operator on duty was involved with the ongoing troubleshooting of the tripped circulator and was not attentive to the transient xenon temperature effect. Hot reheat steam temperatures slowly increased until the trip occurred, as designed.

Following the scram all plant control systems [JA]\* functioned as designed and active core cooling was maintained. The auxiliary boiler [SA]\* was started and helium circulators [AB]\* were maintained in operation on auxiliary boiler steam. The plant was restarted on December 27, 1987.

This incident and its significance have been reviewed with all operators, and an audible alarm has been added to the plant data logger to give warning of excessive steam temperatures. This event does not appear to involve a training deficiency. This event is being reported herein pursuant to the requirements of 10CFR50.73(a)(2)(iv).

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PDR ADOCK 05000267  
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\* Energy Industry Identification System (EIIS) Codes

IE22  
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Fort St. Vrain, Unit No. 1	DOCKET NUMBER (2) 05000267	LER NUMBER (6)			PAGE (3)	
		YEAR 87	SEQUENTIAL NUMBER -031	REVISION NUMBER -010		
					02	OF 04

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

EVENT:

On December 25, 1987, the reactor was operating at approximately 29 percent power with the turbine generator [TA]\* on line and primary coolant flow provided by "A", "B", and "D" helium circulators [AB]\*. The overall plant control systems [JA]\*, including the flux controller [JD]\*, were in "manual" or "local set".

Power had been reduced the previous day due to trip of "C" helium circulator [AB]\* per existing Nuclear Regulatory Commission commitments. Night shift reactor operators were manually inserting control rods [AA]\* as necessary to compensate for xenon changes. A newly qualified day shift reactor operator was not informed of the xenon transient during shift turnover and did not notice it himself during the day. The Superintendent of Operations noticed that main steam temperatures were abnormally high for the existing feedwater flow and directed the reactor operator to correct the abnormal condition. The reactor operator reduced the speeds of the operating circulators [AB]\*. Main steam temperatures decreased, as expected, but hot reheat temperatures increased. A single channel hot reheat temperature scram occurred, followed approximately thirty seconds later by the second channel and the reactor scram.

CAUSE:

The root cause of the event was operator inattention to plant conditions. Several additional factors contributed to the scram.

First, there are no installed plant alarms [IB]\* on either high hot reheat or high main steam temperature, even though high hot reheat temperature results in a reactor scram. Such an alarm, separate from the single channel scram alarm, would provide the operator additional time to reduce hot reheat temperature before automatic protective response.

Second, although the hot reheat temperature scram setpoint is 1050 degrees, the indications readily available to the operator, including the plant data logger, all indicated hot reheat temperature at 1020 degrees at the time of the scram.

Third, troubleshooting and testing of "C" helium circulator was in progress throughout day shift, distracting the operator from his other duties.

Fourth, hot reheat steam temperature indication is available to the operator in only two places. One of them is a single-pen chart recorder that gives a good historical trace of the temperature, but is difficult to read from the distance at which an operator normally scans his panels. The other is the plant data logger, but reading reheat temperatures on the data logger requires selecting the appropriate display screen.

\* Energy Industry Identification System (EIIS) Codes

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

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

This event does not appear to involve a training deficiency. Both the effects of xenon and the interactions of the various control systems with each other and with the plant are covered in detail in the Reactor Operator and Licensed Operator Requalification courses.

ANALYSES:

This event was an unplanned actuation of the reactor protective system [JC]\* and is being reported herein per 10CFR50.73(a)(2)(iv).

Per FSAR Section 7.1.2.3, the purpose of the hot reheat high temperature scram is to protect the plant from increases in reactor power or reductions in primary coolant flow. During this event, the increase in reactor power as the result of a xenon transient was terminated by the hot reheat temperature scram, which functioned as designed. All other plant control systems functioned as designed following the scram. Active core cooling was maintained throughout the incident.

No similar events of this nature have occurred.

Based on this analysis, it is concluded that this incident posed no threat to the health and safety of the public.

CORRECTIVE ACTION:

The immediate and followup actions specified in plant emergency procedures were taken.

The reactor was returned to power on December 27, 1987.

The consequences of inattention to all plant parameters were reviewed with the operator involved.

All operating personnel were told to conduct thorough shift turnovers with attention to detail and to maintain awareness of plant conditions. The effects of xenon transients were reviewed with all licensed operators.

Alarms were added to the plant data logger [ID]\* by means of a software change to alert the operator if main or hot reheat steam temperature exceeds 1015 °F.

The discrepancy between control system [JA]\* hot reheat steam temperature indication and the indications provided by the plant protective system [JC]\* has been investigated. Several instruments in the plant control system have been recalibrated in an attempt to reduce the discrepancy. The plant data logger [ID]\* reference junction compensation system deficiency was corrected. The largest portion of the discrepancy is in the calibration of the plant protective system modules. These modules will be recalibrated and their readings verified prior to startup following the next scheduled plant shutdown.

\* Energy Industry Identification System (EIIS) Codes

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FACILITY NAME (1) Fort St. Vrain, Unit No. 1	DOCKET NUMBER (2) 0 5   0   0   0   2   6   7	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (if more space is required, use additional NRC Form 365A (1) (17))

*Steve Jones*

Steve Jones  
Senior Results Engineer

*Mark Joseph*

Mark Joseph  
Technical Services Supervisor

*J.M. Granling*

Licensing

*C.H. Fuller*

C. H. Fuller  
Station Manager

\* Energy Industry Identification System (EIIS) Codes



Public Service  
Company of Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

January 25, 1988  
Fort St. Vrain  
Unit No. 1  
P-88037

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Docket No. 50-267

SUBJECT: Licensee Event Report  
87-031, Final Report

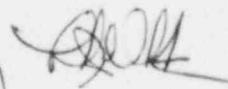
REFERENCE: Facility Operating  
License No. DPR-34

Gentlemen:

Enclosed please find a copy of Licensee Event Report  
No. 50-267/87-031, Final, submitted per the requirements of  
10 CFR 50.73(a)(2)(iv).

If you have any questions, please contact Mr. M. H. Holmes at (303)  
480-6960.

Sincerely,

R. O. Williams by 

R. O. Williams, Jr.  
Vice President  
Nuclear Operations

Enclosure

cc: Regional Administrator, Region IV  
ATTN: Mr. T. F. Westerman, Chief  
Project Section B

Director Nuclear Reactor Regulation  
ATTN: Mr. J. A. Calvo, Director  
Project Directorate IV

Mr. R. E. Farrel;  
Senior Resident Inspector, FSV

ROW/djm

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