

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fort St. Vrain, Unit No. 1	DOCKET NUMBER (2) 0 5 0 0 0	PAGE (3) 1 OF 0 4
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TITLE (4)
Spurious RWP Actuations During Area Monitor Testing

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)
0	2	1	7	8	6	8	6	0	N/A		0 5 0 0 0
0	2	1	7	8	6	8	6	0			0 5 0 0 0

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)									
POWER LEVEL (10) 0 1 0 1 0	<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)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	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)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iv)								

LICENSEE CONTACT FOR THIS LER (12)
NAME: Jim Eggebroten, Superintendent, Technical Services Eng.
TELEPHONE NUMBER: 31013 718151-21213

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

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)

On February 17, 1986, with the reactor operating at approximately 0.5% power, the Rod Withdrawal Prohibit (RWP) function was spuriously actuated seven times. These spurious actuations were the result of testing the plant area radiation monitors.

Upon investigation, it was determined that temporary ground jumpers previously installed on the startup channel preamplifiers as part of the ongoing RWP investigation, had created an additional ground loop within the startup channel circuitry. This loop caused increased current flow through the startup channels when the area radiation monitors were source checked. The temporary jumpers were removed and the problem was resolved.

Although the RWP function is not an Engineered Safety Feature, nor part of the Reactor Protection System (i.e., reactor scram system), the licensee has agreed to report spurious/unplanned RWP actuations until formal guidance from the Nuclear Regulatory Commission is obtained.

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

EVENT DESCRIPTION:

On February 17, 1986, the reactor was operating at approximately 0.5% power. Reactor core cooling was provided by "A" and "D" helium circulators operating on steam, and both loop steam generators operating on feedwater. The Prestressed Concrete Reactor Vessel was pressurized to 350 PSIA, and reactor fuel temperatures were approximately 200 degrees Fahrenheit.

The area radiation monitors are functionally tested per SR 5.4.9-W on a weekly basis. During this test, each area monitor is exposed to a radioactive source to verify monitor response. This "source check" test is performed from the control room by operation of each area monitor's "source check" switch. On February 17, 1986, at approximately 0430 hours, while performing SR 5.4.9-W, seven RWP's on startup channel "rate of rise" were received. The actuations were directly related to operation of area monitor "source check" switches. Six RWP's occurred on startup channel II with one occurring on startup channel I.

During reactor startup, the high voltage supply to the startup channels detectors and preamplifiers is automatically disconnected by the wide range channels at approximately 10E-2% reactor power. Therefore, at the time of this event (i.e., 0.5% reactor power), startup channels I and II detectors were de-energized.

CAUSE:

As part of the on-going investigation into spurious startup channel RWP actuations, temporary jumpers were installed from the detector output cable shield to structural ground on each startup channel. With these temporary jumpers installed, an additional ground loop was created within the startup channel circuitry. Upon placing the area monitor test switches to "source check", the additional ground loop produced a current in the startup channels of significant magnitude to actuate the "rate of rise" RWP function.

ANALYSIS:

These erroneous actuations of the startup channel "rate of rise" RWP function had no effect on operability of the three wide range channels or the six linear power channels. Therefore, necessary instrumentation and protective functions were available to detect reactor neutron flux anomalies and initiate automatic corrective actions as designed.

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

Upon receiving these spurious startup channel RWP actuations, operators observed operating nuclear instrumentation (i.e., three wide channels and six linear power channels) and verified normal core neutron flux indication. Since the high voltage supply to the startup channel detectors and preamplifiers was automatically shutoff by design, and the channels were cut out, these channel actuations were determined to be erroneous.

CORRECTIVE ACTION:

The temporary ground jumpers were removed and both startup channels were returned to their normal configuration.

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

Jim Hill

Jim Hill
Technical Services Senior Technician

Jim Eggebroten

Jim Eggebroten
Superintendent, Technical Services Eng.

Licensing Review By: *Scott Hoff*

Jim Gramling

Jim Gramling
Nuclear Licensing-Operations Supervisor

C. H. Fuller

C. H. Fuller
Station Manager

C. H. Fuller for J. W. Gahm

J. W. Gahm
Manager, Nuclear Production



Public Service

16805 WCR 19 1/2, Platteville, Colorado 80651

Public Service
Company of Colorado

March 19, 1986
Fort St. Vrain
Unit No. 1
P-86213

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

Docket No. 50-267

SUBJECT: Licensee Event Report
86-014, Final Report

REFERENCE: Facility Operating
License No. DPR-34

Gentlemen:

Enclosed please find a copy of Licensee Event Report
No. 50-267/86-014, Final, submitted per the requirements of
10 CFR 50.73(a)(2)(iv).

Sincerely,

J. W. Gahm
Manager, Nuclear Production

Enclosure

cc: Regional Administrator, Region IV
Attn.: Mr. J. E. Gagliardo, Chief
Reactor Projects Branch

cc: Director of Nuclear Reactor Regulation
Attn.: Mr. H. N. Berkow, Director
Standardization and Special
Projects Directorate

cc: Director, MIPC

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