NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Fort St. Vrain, Unit No. 1	0 5 0 0 0 2 6 7	1 OF 0 5

TITLE (4): TECHNICAL SPECIFICATION SURVEILLANCE NOT PERFORMED WITHIN REQUIRED INTERVAL

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 1	0 2	8 8	8 8	0 0 1	0 0	0 2	0 1	8 8	N/A	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): N

POWER LEVEL (10): 0 3 0

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

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER: AREA CODE	
Mark A. Joseph, Technical Services Supervisor	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 NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) — X NO

EXPECTED SUBMISSION DATE (15): MONTH | DAY | YEAR

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

On January 2, 1988, with the reactor operating at approximately 30% power, the "A", "B", "C", and "D" helium circulators operating on their steam drives, and both secondary coolant loops in normal operation, Results Department personnel failed to perform the daily linear channel heat balance calibration. Since Fort St. Vrain Technical Specification SR-5.4.1.1.4 requires the linear channels be adjusted daily to agree with the heat balance calculation, this event constitutes operation in violation of the Technical Specifications and is being reported per 10CFR50.73(a)(2)(i)(B).

When a trip of the "B" helium circulator at 1204 hours delayed performance of the linear power channel heat balance calibration surveillance, the Results Department Supervisor instructed the Results Technician assigned to perform the surveillance that he could proceed home. Due to an oversight by the Results Supervisor, no additional arrangements were made to ensure a Results Technician performed the linear power channel calibration on January 2, 1988.

The Results Department Supervisor was instructed on the importance of ensuring completion of this surveillance on a daily basis. No further corrective action is needed.

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EVENT DESCRIPTION:

On January 2, 1987, the reactor was operating at approximately 30% power, with primary coolant being provided by the "A", "B", "C", and "D" helium circulators [AB]* operating on their steam drives, and both secondary coolant loops [AB]* operating on feedwater, supplied from "A" and "C" boiler feedpumps [SJ]*. At approximately 1000 hours, reactor power was increased to 35% power, and held steady. At approximately 1200 hours, the "responsible for" Results Technician began preparations to perform the linear channel [IG]* heat balance calibration. However, at 1204 hours, the "B" helium circulator [AB]* tripped on program speed mismatch while returning its steam drive speed valve (SV-2111) from manual control to automatic control. Reactor power was reduced to 30% at 1215 hours and investigative troubleshooting of SV-2111 was initiated. While troubleshooting SV-2111, reactor operators requested that control room surveillance testing be postponed until the SV-2111 problem was resolved. After waiting several hours for resolution of SV-2111 problems, the Results Technician contacted his supervisor and informed him that the linear channel calibration had not been completed due to SV-2111 problems. At this time, the Results Supervisor instructed the Results Technician to proceed home. At 1950 hours on January 2, 1988, the problem with SV-2111 was resolved, however due to an oversight, the Results Supervisor did not make prior arrangements to ensure that Results personnel were available to complete the linear power channel heat balance calibration and therefore the test was not performed on January 2, 1988. Reactor power was held constant at approximately 30% and on January 3, 1988, at approximately 1600 hours, the linear power channel heat balance calibration was performed. During this calibration, the "AS FOUND" linear power channel indicated average reactor power was less than 1% different than the heat balance calculation of reactor power.

CAUSE DESCRIPTION

Personnel Error

The Results Department Supervisor involved recognized the requirement to complete the daily linear channel calibration, however failed to arrange for completion of the calibration after the Results Technician assigned to complete the test proceeded home.

The Results Supervisor involved is responsible for issuing and assuring completion of Technical Specification surveillances performed by the Results Department. This individual has demonstrated in the past a good understanding of the Technical Specification surveillance requirements and the importance of completing scheduled surveillances within the Technical Specification interval. Therefore, Public Service Company feels that this failure to complete the linear channel heat balance calibration is an isolated incident and not indicative of a deficiency in the surveillance program.

* Energy Industry Identification System (EIIS) Codes

ANALYSIS OF EVENT:

Since Fort St. Vrain Technical Specification SR 5.4.1.1.4 requires daily calibration of the linear power channels to agree with the calculated heat balance, this event constitutes operation in violation of the Technical Specifications and is being reported herein per 10CFR50.73(a)(2)(i)(B).

Analysis of actual operating data indicate that the power range neutron detectors are subject to decalibration due to motion of the control rod banks. Control rod motion can alter the radial core flux distribution so that the flux reaching the out-of-core detectors does not vary proportionally with true core thermal power. Withdrawal of a rod bank near the core center line causes the detectors to underindicate the true power change, while the withdrawal of outer bank rods results in overindication. Diffusion calculations have shown that detector decalibration factors are not sensitive to any changes other than changes in control rod position. A reactor scram must always be initiated before true power reaches the scram point prescribed by Technical Specifications. Therefore, a system has been developed in which the high neutron flux scram setpoint is set at a predetermined level below the Technical Specification limiting scram setpoint. Using calculated detector decalibration factors for the various control rod configurations, the configuration which would most delay the PPS trip is determined for each operating control rod group withdrawn in sequence. PPS trip setpoints are then specified, as a function of power, such that signals from the nuclear detectors will activate a rod withdrawal prohibit (RWP) at an actual core power of less than or equal to 120% and a reactor scram at an actual core power of less than or equal to 140%. This system assures that under worst case postulated rod withdrawal accident conditions, a scram will occur before true reactor power exceeds the Technical Specification limiting scram setpoint.

On January 2, 1988, failure to adjust the linear channels and compensate for detector decalibration following rod withdrawal and an increase in reactor power, resulted in a discrepancy between linear channel reactor power and heat balance reactor power of approximately 1% (linear lower than heat balance). This discrepancy was not significant in affecting the linear power channels capability to initiate an RWP at or below 120% true reactor power, and a reactor scram at or below 140% true reactor power. The linear channel 120% RWP is adjusted as a function of thermal power with the maximum trip setting at 108% indicated (Fuel Cycle 4). The High Neutron Flux 140% Scram also is adjusted as a function of thermal power with a maximum trip setting of 116% indicated (Fuel Cycle 4).

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

Potential differences between the indicated reactor power on the linear power channels and the heat balance calculation are administratively controlled by Overall Plant Operating Procedure (OPOP) IV. Per this procedure, the linear power channels are to be calibrated to agree with the heat balance calculation when any of the following conditions are satisfied:

- Following full withdrawal or insertion of each control rod group (groups 2B through 3D).
- When control rod groups 3B and 3D are one-half withdrawn.
- Whenever any channel approaches or reaches a RWP setpoint.
- With the ISS in "startup", when heat balance power is between 2% and 4% rated power.
- When increasing reactor power with the ISS in "low power", when heat balance power is between 24% and 28% rated power.
- With the ISS in "power" when the heat balance power drops below 36% of rated power.
- At the reactor operators discretion.
- When individual nuclear detectors differ by greater than or equal to 10% of full power.

These administrative controls in addition to the Technical Specification requirement for daily calibration, provide assurance that the linear power channels remain operable to initiate protective action within established safety limits.

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

Similar events where surveillances were not performed within the required interval were reported in RO's 79-019, 79-021, 80-078, 82-039, and 83-050, and in LER's 84-004, 85-006, 86-016, and 87-030.

CORRECTIVE ACTION:

The Fort St. Vrain Technical Specification compliance section met with the individual supervisor involved and discussed the necessity in completing Technical Specification surveillance procedures within the specified intervals. The individual supervisor has demonstrated, in the past, a good understanding of Technical Specification requirements and therefore this is viewed as an isolated incident. Programmatic deficiencies were not identified.

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

Jim Hill

Jim Hill
Senior Technical Services
Engineering Technician

Mark Joseph

Mark Joseph
Technical Services Supervisor

J.M. Gramling

Licensing

C. H. Fuller
Station Manager

* Energy Industry Identification System (EIIS) Codes

Public Service™

Public Service
Company of Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

February 1, 1988
Fort St. Vrain
Unit No. 1
P-88049

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

Docket No. 50-267

SUBJECT: Licensee Event Report 88-001, Final Report

REFERENCE: Facility Operating License No. DPR-34

Gentlemen:

Enclosed please find a copy of Licensee Event Report No. 50-267/88-001, Final, submitted per the requirements of 10 CFR 50.73(a)(2)(i)(B).

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

Sincerely,

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. Farrell
Senior Resident Inspector, FSV

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