

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
**Indian Point Unit No. 2**

TITLE (4)  
**Reactor Trip Due to Closing Of Feedwater Regulating Valve**

DOCKET NUMBER (2)  
**0 5 0 0 0 2 4 7 1**

PAGE (3)  
**0 1 4**

EVENT DATE (6)			LER NUMBER (8)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (5)						
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)					
1	12	88	88	0	1	0	12	21	88			0	5	0	0	0
												0	5	0	0	0

OPERATING MODE (8)

POWER LEVEL (10)

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10-CFR 5: (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(a)	<input type="checkbox"/> 20.406(a)	<input checked="" type="checkbox"/> 80.73(a)(2)(i)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 80.36(a)(1)	<input type="checkbox"/> 80.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 80.36(a)(2)	<input type="checkbox"/> 80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 204A)
<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 80.73(a)(2)(ii)	<input type="checkbox"/> 80.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.406(a)(1)(vi)	<input type="checkbox"/> 80.73(a)(2)(iii)	<input type="checkbox"/> 80.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.406(a)(1)(vii)	<input type="checkbox"/> 80.73(a)(2)(iv)	<input type="checkbox"/> 80.73(a)(2)(i)(a)	
	<input type="checkbox"/> 80.73(a)(2)(iii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME  
**Jude G. Del Percio, Manager Regulatory Affairs**

TELEPHONE NUMBER  
**9 1 4 5 2 6 - 5 1 2 7**

AREA CODE  
**9 1 4**

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
B	S	J	FU	Y					
B	W	I	FU	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)

NO

EXPECTED SUBMISSION DATE (16)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1000 words, i.e., approximately fifteen single-space typewritten lines) (15)

On November 26, 1988, at approximately 0623 hours, Steam Generator #24 steam flow/feed flow mismatch alarm annunciated in the Control Room as a result of main feedwater regulating valve FCV-447 failing closed. Control Room operators attempted to open FCV-447 by placing it in the manual mode, however the valve would not respond. The feedwater low flow valve FCV-447L was placed in the full open position, however it could not supply sufficient flow to prevent a low steam generator level mismatch trip. The cause of the regulating valve failing closed was traced to a failed fuse in its control circuit. Loss of control power de-energized the regulating valve solenoids, and allowed instrument air to vent, closing the valve. There was no adverse impact on public health and safety.

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Indian Point Unit No. 2

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TEXT (If more space is required, use additional NRC Form 266A (1))

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse Four Loop Pressurized Water Reactor  
Feedwater System  
Steam Generator Blowdown System

IDENTIFICATION OF OCCURRENCE:

Reactor trip due to a low steam generator level coincident with a steam flow/feed flow mismatch caused by closing of a feedwater regulating valve.

REPORTABILITY DETERMINATION DATE:

November 26, 1988

REPORT DUE DATE:

December 27, 1988

REFERENCES:

SOR 88-617, dated November 26, 1988

PAST SIMILAR OCCURRENCE:

None

DESCRIPTION OF OCCURRENCE:

On November 26, 1988, at approximately 0623 hours, Steam Generator #24 steam flow/feed flow mismatch alarm annunciated in the Control Room as a result of feedwater regulating valve FCV-447 failing closed. Control Room operators attempted to open FCV-447 by placing it in the manual mode, however the valve would not respond. The low flow valve FCV-447L was placed in the full open position, however it could not supply sufficient flow to prevent a low steam generator level mismatch trip.

This LER is required since the reactor trip constitutes an unplanned actuation of the Reactor Protection System. All safety systems functioned as required. Other than the analysis provided below, which was initiated to determine the cause of the trip, no further analysis of the occurrence is necessary. There was no effect upon the health and safety of the public.

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NOTE: If more space is required, use additional NRC Form 366a (11)

CAUSE OF INITIATING EVENT:

The cause of the regulating valve failing closed was traced to a failed fuse in its control circuit. Loss of control power de-energized the regulating valve solenoids, which allowed instrument air to vent, thus closing the valve.

ANALYSIS OF OCCURRENCE:

Troubleshooting of the failed regulating valve revealed that a fuse (Bussman Model B34-24, 3 amp, 250 Vdc) in its control circuit had failed, allowing the valve to fail closed. The feed regulating valves are powered from 125 Vdc Distribution Panel #21. Additional investigation showed that the valve solenoids and wiring test values were as expected. All testing indicated that the valve control circuit was normal, and that there was no basis to believe an overcurrent condition had existed.

After the reactor trip, a review of the Control Room panels indicated that the control circuit for the Steam Generator Blowdown isolation valves was deenergized. However, steam generator sampling records indicate normal blowdown flows until the time of the trip. The blowdown isolation valves are designed to close following a trip of this nature when the motor driven auxiliary feed pumps start. The valves failed in the conservative direction, and all protective features functioned as designed.

The indication was caused by a second failed fuse (Shawmut Model A2K3R, 3 amp, 250 Vdc) in the negative leg of the Steam Generator Blowdown isolation valve control circuit (1314A through 1317A). This circuit is powered from 125 Vdc Distribution Panel #22. The control solenoids for the blowdown valves are wired in parallel through single positive and negative fuses (the negative fuse had failed). Opening of either of these fuses will deenergize the solenoids and allow all four isolation valves to close.

The failed fuses were tested/analyzed. The results indicated that both these fuses probably failed due to their age.

Finally, the main boiler feed pump suction relief valves were noted to have lifted, as did the tube side relief valves on feedwater heaters #22A and #25A. It was determined that a pressure spike, which sometimes happens for this type of transient, lifted the valves, which thereby functioned as designed. These valves were subsequently recalibrated and resealed.

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TEXT (1) must appear in approved, use additional NRC Form 302a (1/77)

CORRECTIVE ACTION:

Both the feedwater regulating valve circuit and the steam blowdown isolation valve circuit were completely checked for indication of overloads or electrical problems. No such problems were found. The affected fuses were replaced, and the fuses in the remaining feedwater regulating valves were also replaced.

In addition, further long-term corrective actions are under review. These long-term actions may include a fuse replacement program to periodically change out aging fuses, as necessary. Whatever corrective actions are deemed necessary will be implemented by the end of the 1989 refueling outage.

Stephen B. Bram  
Vice President

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December 21, 1988

Re: Indian Point Unit No. 2  
Docket No. 50-247  
LER 88-019-00

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555

The attached Licensee Event Report LER 88-019-00 is hereby submitted in accordance with the requirements of 10CFR50.73.

Very truly yours,



Attachment

cc: Mr. William Russell  
Regional Administrator - Region I  
U.S. Nuclear Regulatory Commission  
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