

Stephen E. Quinn
Vice President

Consolidated Edison Company of New York, Inc.
Indian Point Station
Broadway & Bleakley Avenue
Buchanan, NY 10511
Telephone (914) 734-5340

May 30, 1996

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 96-09-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station PI-137
Washington, DC 20555

The attached Licensee Event Report 96-09-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

John McLooy
for Steve Quinn

Attachment

cc: Mr. Thomas T. Martin
Regional Administrator - Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Jefferey Harold, Project Manager
Project Directorate I-1
Division of Reactor Projects I/II
US Nuclear Regulatory Commission
Mail Stop 14B-2
Washington, DC 20555

Senior Resident Inspector
US Nuclear Regulatory Commission
PO Box 38
Buchanan, NY 10511

1/1
IE22

9606110403 960530
PDR ADOCK 05000247
S PDR

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) <u>Indian Point Unit No. 2</u>	DOCKET NUMBER (2) <u>0 5 0 0 0 2 4 7</u>	PAGE (3) <u>1 OF 5</u>
---	---	---------------------------

TITLE (4)
Turbine Runback During Surveillance 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)
<u>0 4</u>	<u>3 0</u>	<u>9 6</u>	<u>9 6</u>	<u>0 0 9</u>	<u>0 0</u>	<u>0 5</u>	<u>3 0</u>	<u>9 6</u>		<u>0 5 0 0 0</u>

OPERATING MODE (9) <u>N</u>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) <u>1 0 0</u>	<input type="checkbox"/> 20.402(b)	<input checked="" type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)								

LICENSEE CONTACT FOR THIS LER (12)

NAME <u>James J. Maylath, Senior Engineer</u>	TELEPHONE NUMBER
	AREA CODE: <u>9 1 4</u> <u>7 3 4 - 5 3 5 6</u>

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
<u>X</u>	<u>J C</u>	<u>R J X</u>	<u>W 1 2 1</u>	<u>Y</u>					

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 April 30, 1996, with the unit operating at 100% power, an automatic turbine runback occurred during surveillance testing of the nuclear instrumentation system. A blown fuse in a nuclear instrumentation channel initiated the runback. The automatic runback, which is designed to reduce power to 85%, reduced power to approximately 96%. Power was brought below 85% in order to exit the surveillance test and remove the nuclear instrumentation channel from service. The channel was removed from service for fuse replacement and troubleshooting. The channel was placed back into service. The channel was then taken out of service again for replacement of the low voltage power supplies. At this time, a second turbine runback occurred reducing power to approximately 83%. These events had no adverse impact to safety. The Final Safety Analysis Report states that departure from nucleate boiling design basis is satisfied for dropped rod analysis without turbine runback.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point Unit No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 4 7	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 6	— 0 0 9	— 0 0	0 2	OF	0 5

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

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Turbine Runback During Surveillance Testing

EVENT DATE:

April 30, 1996

REPORT DUE DATE:

May 30, 1996

REFERENCES:

Condition Identification and Tracking System (CITRS) No. 96-001084 and 96-001088

PAST SIMILAR OCCURRENCE:

None.

DESCRIPTION OF OCCURRENCE:

On April 30, 1996 at 0955 hours, with the unit operating at 100% power, an actuation of the Reactor Protection System (RPS) that included an automatic turbine runback occurred when a control fuse blew on Power Range Channel N41 of the nuclear instrument system. Power was automatically reduced to approximately 96% (based on turbine load and instrument system indications). No reactor trip occurred because the blown fuse only affected one power range channel. Two out of the four power range channels are required to trip the reactor. At the time of the event, Instrument and Control (I&C) personnel were performing surveillance test PT-Q51 on Power Range Channel N41.

The automatic runback is designed to reduce power to 85% power. Reactor power was brought below 85% over the next two hours to exit surveillance test PT-Q51 and remove channel N41 from service. Channel N41 was temporarily returned to service at 1500 hours following fuse replacement and troubleshooting that identified the need for replacement of the low voltage power supplies in the channel drawer. This replacement was not immediately required for operation of the channel. At 1540 hours, the low voltage power

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point Unit No. 2	DOCKET NUMBER (2) 0500024796	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		96	0109	01	03	OF 05

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

supply replacements were available, and channel N41 was taken out of service again. Upon removing the control fuses in the channel drawer, a second turbine runback occurred that automatically reduced reactor power to approximately 83%. At 2220 hours ascension to full power commenced following replacement of the low voltage power supplies for channel N41 and restoration of the channel to service.

ANALYSIS OF OCCURRENCE:

This report is being made because an actuation of the RPS occurred on April 30, 1996. This actuation is reportable under 10 CFR 50.73(a)(2)(iv). The blown fuse (and later the removed fuses) de-energized and tripped Power Range Channel N41 which is part of the RPS. The reactor did not trip because at least two out of four power range channels must be nonfunctional to trip the reactor. The automatic turbine runback occurred because any one of the four power range channels can initiate the runback. The runback function is designed to compensate for reactor power changes due to a dropped control rod. The automatic runback is designed to terminate at turbine power of 85%. The Final Safety Analysis Report states that departure from nucleate boiling design basis is satisfied for dropped rod analysis without turbine runback. There were no dropped control rods or any adverse impacts to safety at the time of these events.

CAUSE OF OCCURRENCE:

The cause of the first automatic runback was a blown control power fuse in the channel N41 drawer. One of the two low voltage power supplies in the channel N41 drawer developed a ripple that resulted in bistable chatter (frequent changes in state of the bistable output). This caused the bistable output circuits to draw much higher than normal current due to cycling of the relays in the output circuits. This resulted in the blown fuse and the de-energization of the bistable output circuits which include the logic relays and the runback block relays which must be energized to enable the block. This placed a trip signal from channel N41 in the RPS and initiated the automatic turbine runback. The automatic runback terminated at 96% power due to a timer relay that is set to actuate when load limit oil pressure is expected to approach a value that corresponds to approximately 85% turbine power. There is also an oil pressure switch that terminates an automatic turbine runback when load limit oil pressure reaches a design setpoint that corresponds to 85% turbine power (this setpoint was not reached during the first runback). This switch is set to open and terminate the runback within an actuation range of 38.5 +/- 1 psi which corresponds to turbine power within a range of approximately +/- 2% of the design setpoint.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point Unit No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 4 7	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 6	- 0 0 9	- 0 0	0 4	OF	0 5

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

During the runback, turbine power is reduced by reducing load limit oil pressure. Prior to the runback, load limit oil pressure was initially higher than the oil pressure that was used for design analysis. Therefore, when the runback was initiated, the turbine power did not decrease until the load limit oil pressure was less than the control oil pressure. As a result, the timer actuated when load limit oil pressure corresponded to approximately 96% turbine power and stayed well above the runback design of 85% power.

The second runback occurred when the fuses were removed from the channel N41 drawer prior to replacement of the low voltage power supplies. This resulted in de-energization of the bistables and their output circuits. This runback occurred because the load limit oil pressure was still above the actuation point (which can be in a range of 38.5 +/- 1 psi) of the oil pressure switch described above even though reactor power was slightly below 85%. The operators did not expect this runback because with reactor power below 85%, the System Operating Procedure did not require blocking the dropped rod protection relays for a failed nuclear instrumentation channel prior to its removal from service.

CORRECTIVE ACTION:

Reactor power was reduced to below 85% power following the first automatic turbine runback in order to remove channel N41 from service for fuse replacement and troubleshooting. Channel N41 was restored to service following fuse replacement but prior to the power supply replacement to preclude the possibility of a reactor trip in the event of a momentary spike on another power range channel of the nuclear instrument system during the time needed to obtain the required power supplies. The two low voltage power supplies were replaced following the second runback, and channel N41 was returned to service.

The System Operating Procedure will be revised to provide for blocking the dropped rod protection relays for the failed nuclear instrumentation channel at any reactor power level prior to removing the channel from service. Presently, this is only done if it is intended to increase reactor power above 85% while the channel is out of service. At the time of the second runback, reactor power was at 84.5%, but load limit oil pressure was slightly above the setpoint of the oil pressure switch that terminates the automatic turbine runback. Testing of this switch following the event determined that the switch actuated at 37.8 psi which corresponds to 83% turbine power. This is within the design actuation range, 38.5 +/- 1 psi, of the switch.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point Unit No. 2	DOCKET NUMBER (2) 0 5 0 0 0 2 4 7	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 6	0 0 9	0 0	0 5	OF 0 5

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

Other operating procedures and training material will be reviewed for any steps or statements that imply that the dropped rod automatic turbine runback will not occur for reactor power below 85%. Revisions and clarifications will be made as necessary to account for the dropped rod automatic turbine runback being interlocked with load limit oil pressure rather than reactor power.