

James S. Baumstark
Vice President
Nuclear Engineering

Consolidated Edison Company of New York, Inc.
Indian Point 2 Station
Broadway & Bleakley Avenue
Buchanan, New York 10511

Internet: baumstarkj@coned.com
Telephone: (914) 734-5354
Cellular: (914) 391-9005
Pager: (917) 457-9698
Fax: (914) 734-5718

May 21, 1999

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 99-007-00

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

The attached Licensee Event Report 99-007-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

cc: Mr. Hubert J. Miller
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

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)

Indian Point No. 2

DOCKET NUMBER (2)

05000-247

PAGE (3)

1 OF 4

TITLE (4)

Failure of 480 V Bus 2A DC Control Power Transfer Switch.

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 NAME	DOCKET NUMBER
04	21	1999	1999	-- 007 --	00	05	21	1999		05000
										05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	99	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)				
		20.2203(a)(1)	20.2203(a)(3)(i)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)				
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71				
		20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER				
		20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A				
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)

NAME

Ingvar Kjellberg, Senior Engineer

TELEPHONE NUMBER (Include Area Code)

(914) 734-5567

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	EJ	ASU	A610	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At approximately 2100 hours on April 21, 1999, with the IP2 station operating at approximately 99 % power, surveillance tests were being conducted to verify that the 125 VDC control power to various 480 VAC safeguards busses could be transferred from their normal DC supply to their alternate DC supply. During performance of these tests, an automatic transfer switch failed at mid position leaving 480 VAC Bus 2A without DC control power. Due to the loss of DC control power to Bus 2A, Technical Specification (TS) 3.0.1 was entered. The immediate corrective action taken by the operator was to restore control power by manually moving the transfer switch to its "normal" position. Once the 125 VDC control power was restored, which occurred about 30 seconds into the event, TS 3.0.1 was exited and pursuant to 10 CFR 50.72(b)(1)(ii)(B), the NRC was notified. An operability determination of the transfer switch was performed after which the transfer switch was declared operable in its "normal" position. It will remain in that position until repaired. The apparent cause of the failure to transfer was malfunction of mechanical limit switches internal to the automatic transfer switch. The event had no effect on the health and safety of the public or plant personnel.

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		1999	-- 007 --	00	

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

PLANT AND SYSTEM IDENTIFICATION: Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE: Test failure during a surveillance test.

EVENT DATE: April 21, 1999

REPORT DUE DATE: May 21, 1999

REFERENCES: Condition Reporting System (CRS) No. 199903273

PAST SIMILAR OCCURRENCE: Condition Reporting System (CRS) No. 199801744

DESCRIPTION OF OCCURRENCE:

With the IP2 station at approximately 99% power, surveillance tests of the automatic transfer of control power to various 480 VAC safeguards buses were conducted. During the performance of the test for 480 VAC bus 2A, the 125 VDC control power transfer switch EDD-2 failed to automatically transfer from its normal DC supply fed from Power Panel 22 to its alternate supply from Power Panel 24. EDD-2 was stuck in mid-position for approximately 30 seconds, until the operator manually moved the switch back to its original position. This event resulted in a temporary loss of DC control power to 480 VAC bus 2A for about 30 seconds. Due to the loss of DC control power, Technical Specification (TS) 3.0.1 was entered. Once control power was restored, TS 3.0.1 was exited. Pursuant to 10 CFR 50.72(b)(1)(ii)(B) the NRC was notified. An operability determination of the transfer switch was performed, after which the transfer switch was declared operable in its "normal" position. The transfer switch will remain in that position until repaired.

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

ANALYSIS OF OCCURRENCE:

Transfer Switch EDD-2 supplies 125 VDC control power to 480 VAC bus 2 A. The "normal" 125 VDC power is supplied from Battery 22 via Power Panel 22 and the "alternate" feed is supplied by Battery 24 via Power Panel 24. During the performance of surveillance test PT-SA18, EDD-2 failed to transfer from its normal to its alternate supply. The transfer switch was stuck in mid-position resulting in a temporary loss of control power to bus 2A. There was no immediate impact on the loads served by bus 2A. Loss of control power to the bus is less severe than loss of the 480 VAC power to the bus itself. Loss of control power will keep the closed breakers connected to the 480V bus. It does prevent the closed breakers from being tripped off the bus and the open breakers from closing onto the bus. Although the transfer switch in mid position would remove all control power for the bus, the amptectors on the associated Bus 2A breakers would continue to function to protect the equipment supplied from this bus. The amptectors do not use 125 VDC power. They use the line current to produce an output proportional to the fault current to energize the actuator, which in turn produces the mechanical force to trip the breaker. Loss of control power lasted for approximately 30 seconds until the operator manually moved the transfer switch back to its normal position.

An operability determination of the transfer switch was performed, after which the transfer switch was declared operable in its "normal" position. It will remain in that position with its transfer ability defeated until repaired. The apparent cause of failure was faulty operation of mechanical limit switches internal to the transfer switch.

Prior to this event, during a DC-bus load verification activity on March 3, 1998, with the plant shutdown, the same transfer switch failed to transfer to its alternate position. However, in this case the failure mode was different since the switch never moved and remained in its "normal" position.

Currently the switch is degraded and unable to swap to an emergency power supply. However, the switch is operable in its "normal" position where it is supplied from Power Panel 22 and it is monitored by control room operators via the 480V Bus 2A indication. The impact of operating without a backup DC control power supply for 480 VAC bus 2A has been evaluated using the Indian Point 2 probabilistic safety assessment model. Due to the high reliability of the station batteries, the risk assessed with loss of the transfer function and thus loss of the backup 125 VDC supply is very small (approximately 1% of core damage frequency). There are no new failure modes introduced by leaving the transfer switch in its normal position. The event had no effect on the health and safety of the public or plant personnel.

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

CAUSE OF OCCURRENCE:

The root cause evaluation of this occurrence has not yet been completed. The DC Control Power Transfer Switch sticking in mid-travel was apparently caused by mechanical limit switches, internal to the transfer switch, either being stuck closed or not correctly adjusted. The purpose of the limit switches is to de-energize the operating coil of the transfer mechanism before it gets to its top position and allows the built up momentum to close the switch. If the contacts were to remain closed, the switch would be held in its mid-position as was the case for this event.

CORRECTIVE ACTIONS:

The immediate corrective action taken by the operator was to restore control power by manually moving the transfer switch to its "normal" position, which occurred about 30 seconds into the event. An operability determination of the transfer switch was performed after which the transfer switch was declared operable in its "normal" position. It will remain in that position until repaired or replaced.

The apparent cause of the failure to transfer the normal DC supply to the alternate supply is malfunction of mechanical limit switches internal to the automatic transfer switch. A thorough examination and failure analysis of the failed transfer switch will be performed when it is removed from service for replacement or repair. Safely removing the transfer switch requires that the Unit be less than 350 degrees Fahrenheit. This work will be completed during the next outage of sufficient duration and in any case before the end of the year 2000 Refueling Outage (RFO).

A supplement to this Licensee Event Report will be issued if the results from the root cause evaluation differ from the apparent cause.