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

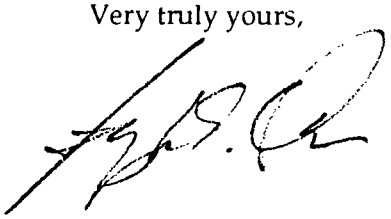
June 21, 1996

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 96-12-00

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

The attached Licensee Event Report 96-12-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



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

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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.

LICENSEE EVENT REPORT (LER)

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

TITLE (4)

Reactor Trip Due to Installation of Incorrect 6.9 kV Breaker which then Failed

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 5 0 0 0
0 5	2 3	9 6	9 6	0 1 2	0 0	0 6	2 4	9 6		0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	X 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)	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
James J. Mavlath, Senior Engineer	AREA CODE 9 1 4 7 3 4 - 5 3 5 6

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
A	E A	B K R	W 1 2 0	N							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On May 23, 1996, with the unit operating at 100% power, an incorrect 6.9 kV breaker was installed and failed causing 6.9 kV Bus 4 to trip. Inspection of the breaker prior to installation was not adequate. This resulted in a loss of power to Reactor Coolant Pump 22. The reactor tripped on the loss of flow that followed the loss of the reactor coolant pump. The generator tripped 30 seconds following the reactor trip as designed. Following the generator trip, 6.9 kV Bus 3 did not transfer from the unit source of power to the offsite source of power as designed due to the concurrent loss of Bus 4. This resulted in the loss of a second reactor coolant pump and 480 V Bus 3A which tripped motor driven Auxiliary Feedwater Pump 21. The three emergency diesels started following the loss of Bus 3A. The operators manually aligned steam driven Auxiliary Feedwater Pump 22 in accordance with emergency operating procedures. Sufficient inventory was maintained in the steam generators. The reactor was safely brought to hot shutdown conditions.

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Reactor trip due to installation of an incorrect 6.9 kV breaker, which then failed

EVENT DATE:

May 23, 1996

REPORT DUE DATE:

June 24, 1996

REFERENCES:

Condition Identification and Tracking System (CITRS) No. 96-001265

PAST SIMILAR OCCURRENCE:

None

DESCRIPTION OF OCCURRENCE:

On May 23, 1996 at 0231 hours, with the unit operating at 100% power, the 6.9 kV breaker for Circulating Water Pump (CWP) 24 failed. This caused a trip of 6.9 kV Bus 4 which also supplies Reactor Coolant Pump (RCP) 22. The RCP tripped when power was lost. The reactor tripped on loss of reactor coolant flow in Reactor Coolant System (RCS) Loop 22. The generator tripped 30 seconds following the reactor trip as designed. Following the generator trip, 6.9 kV Bus 3 did not transfer from the unit source of power to the offsite source of power, because of the concurrent loss of Bus 4. This resulted in the loss of a second RCP and 480 V Bus 3A which resulted in tripping motor driven Auxiliary Feedwater Pump (AFP) 21. AFP 21 had been feeding Steam Generators 21 and 22. Steam driven AFP 22 had automatically started as designed following the reactor trip. AFP 22 was manually aligned to Steam Generators 21 and 22 in accordance with emergency operating procedures. The three emergency diesel generators (EDGs) started following the loss of Bus 3A. At 0305 hours, power was restored to 480 V Bus 3A from EDG 22, and AFP 21 was restarted. Sufficient inventory was maintained in all four steam generators.

Three control rods could not be verified as being fully inserted with the control board analog rod position indicators. Readings on the digital voltmeter indicated full insertion of these control rods. However, as a precautionary measure, an emergency boration was initiated in accordance with operating procedures. Full insertion of these control rods was later verified by Reactor Engineering personnel.

At 0455 hours, the Refueling Water Storage Tank (RWST) volume dropped below the Technical Specification requirement of 345,000 gallons due to water being drawn from the tank for the emergency boration in accordance with procedures. The RWST was refilled following termination of the emergency boration, and the required RWST volume was attained at 1630 hours. Since the reactor was brought to hot shutdown conditions, the interval that the RWST volume was below 345,000 gallons was within Technical Specification limiting conditions of operation.

ANALYSIS OF OCCURRENCE:

This report is being made because an actuation of the Reactor Protection System (RPS) occurred on May 23, 1996. This actuation is reportable under 10 CFR 50.73(a)(2)(iv). Following the reactor trip, all safety related equipment functioned as designed, and the reactor was safely brought to hot shutdown conditions. AFP 21 tripped with the loss of 480 V Bus 3A which occurred when 6.9 kV Bus 3 did not transfer to offsite power. The transfer of the four 6.9 kV buses from the unit to offsite power with a unit trip is designed with two synchronization check relays. One relay permits the transfer of 6.9 kV Buses 1 and 2 to Bus 5 which is normally supplied from the offsite source. The other relay permits the transfer of 6.9 kV Buses 3 and 4 to Bus 6 which is also normally supplied from the offsite source. The relay used for the transfer of Buses 3 and 4 is connected to Buses 4 and 6 for checking synchronization. Since Bus 4 was de-energized with the breaker failure, the relay had no input from Bus 4 to permit the transfer of Bus 3 to offsite power. Bus 3, therefore, de-energized as designed.

The manual action to align steam driven AFP 22 to feed Steam Generators 21 and 22 was performed by the operators in accordance with emergency operating procedure ES 0.1, "Reactor Trip Response." This action maintained sufficient inventory in Steam Generators 21 and 22. The three control rods that did not originally indicate as being fully inserted, were later confirmed to be fully inserted. This was because of inaccuracies associated with the control board analog rod position indicators. There was no damage to equipment other

than the failed 6.9 kV breaker and adjacent portions of the switchgear cabinet. There were no injuries to personnel as a result of this event.

CAUSE OF OCCURRENCE:

The existing breaker for CWP 24 had been scheduled for preventive maintenance (PM). This required removal of the breaker. During the time needed for the PM, a spare breaker was planned to be installed in the cubicle. The spare breaker that was installed was not the proper size for the cubicle. This was the cause of the 6.9 kV breaker failure that resulted in the reactor trip.

The spare breaker that was installed in the cubicle for CWP 24 was rated at 2000 amps instead of the 1200 amps required for this installation. Looking at the front of the breakers, there are only slight observable differences between the two breakers. The sizes of the stabs and rosettes at the rear of these breakers are different. This difference is small in comparison to the overall physical size of the breakers, but critical in how physical contact is made when the breaker is installed in the cubicle. The rosettes for the 2000 amp breaker were larger than required for the stabs in the cubicle, but small enough such that the breaker could be racked in without encountering any difficulties. The size variance resulted in arcing when the breaker was energized which caused a fault and tripped 6.9 kV Bus 4.

The installation of the improperly sized breaker was a result of not identifying the amperage rating (observing the nameplate which was located near the bottom of the breaker) during receipt, maintenance and installation. Personnel were accustomed to having the properly sized onsite spare breaker and assumed that the breaker which came from the warehouse was properly sized. This, together with inadequate communication and a lack of controls on non-class equipment, led to the described event.

CORRECTIVE ACTION:

The control room operators took immediate actions in accordance with emergency operating procedures. The operators manually aligned steam driven AFP 22 following the trip of AFP 21. Emergency boration was commenced when the full insertion of three control rods could not initially be verified because of inaccuracies associated with the control board rod position indicators. Power was restored to 480 V Bus 3A, and AFP 21 was restarted. The reactor was safely brought to hot shutdown conditions.

The operators were not immediately aware of why 6.9 kV Bus 3 did not transfer to the offsite power source. Because of this, Bus 3 remained de-energized for more than six hours, and EDG 22 supplied 480 V Bus 3A for this duration. The operators will be trained on the details of the design of 6.9 kV bus transfer scheme. The inaccuracies of the control board rod position indicators had been known by the operators, and readings on the digital voltmeter, as well as the rod bottom bistable lights indicated full insertion of these control rods. However, the operating procedures directed that the emergency boration be made because the control board rod position indicators did not verify full insertion of the three control rods. The operating procedures have been revised to accommodate some of the inaccuracies of the control board rod position indicators.

The PM procedure for the 6.9 kV breakers was revised to require recording and verification of nameplate data. The planner and maintenance supervisor were disciplined. A report detailing the events and contributing factors leading up to the installation of the improperly sized 6.9 kV breaker has been prepared by Station personnel. Individuals involved in the storage, receipt, maintenance and installation of the breaker have been interviewed. The report details recommended corrective actions to ensure that this event or similar events do not re-occur.

Warehouse personnel will inspect all 6.9 kV breakers returned to the warehouse to the same extent as new materials received from an outside vendor. Signatures will be required when any 6.9 kV breaker is received from the warehouse or any other source. The breakers will be inspected upon receipt. The training requirements of personnel involved with the 6.9 kV breakers will be re-evaluated with emphasis placed on the differences between the 6.9 kV breakers used at the Station. The need for improved controls on other significant non-class components will be re-evaluated.