John D. O'Toole
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, NY 10003
Telephone (212) 460-2533

May 10, 1985

Re: Indian Point Unit No. 2
Docket No. 50-247

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTN: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Dear Mr. Varga:

This is in response to your March 26, 1985 letter regarding reactor trip bypass breakers status indication. Attachments A and B to this letter contain our response to the staff position on the subject. We have concluded that reactor trip bypass breaker indication is not necessary at Indian Point Unit No. 2.

Should you or your staff have any questions, please contact us.

Very truly yours,

John D. O'Toole

attach.
cc: Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

A001
1/1

ATTACHMENT A

Response to NRC's March 26, 1985
Request for Reactor Trip Bypass Breakers Status Indication

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
May, 1985

Discussion

At Indian Point Unit No. 2, the reactor trip breakers and bypass breakers are tripped via the undervoltage (UV) and shunt trip mechanisms upon operation of either of two manual reactor trip switches located on the main control board in the Central Control Room. Upon a Reactor Protection System (RPS) automatic trip signal, the reactor trip breakers are tripped via the UV and shunt trip mechanisms, while the bypass breakers are tripped via the UV trip mechanism.

When the automatic trip is required, the operator, by procedure, must verify that the reactor has tripped. A reactor trip is verified only if the rod bottom indication lights are lit, reactor trip breakers are open, rod position indicators are at zero and neutron flux is decreasing. If all of these responses are not obtained, the operator is directed to manually trip the reactor; this will provide two independent mechanisms for moving the breaker trip device (i.e., undervoltage and shunt trip mechanisms) for the two reactor trip breakers and the two bypass breakers. If, after initiating a manual reactor trip, the reactor has not been verified tripped, the operator will then de-energize busses 2A and 6A for 10 seconds to trip the two Motor Generator (MG) sets which supply power to the rod cluster control drive mechanisms. These busses will then be re-energized to restore power to the other components on the busses.

Operator actions to insure that the reactor has tripped are independent of bypass breaker position indication. In fact, operator action specified in procedures to confirm receipt of a valid reactor trip signal and to verify that the reactor has tripped will be unaffected by the addition of bypass breaker status indication on the main control board. On this basis, we have concluded that the installation of bypass breaker position indication will provide no significant increase in overall reactor safety and is therefore unwarranted and unnecessary.

Item 1: During normal plant operation the bypass breakers are racked out. In this situation the absence of breaker position indication, both red and green position lights extinguished, confirms that the breaker is in the racked out position. This reduces the potential for inadvertent operation of a bypass breaker.

Response: When the bypass breakers are in the racked out position they are administratively required to be locked in their respective switchgear units. The positioning of these breakers to the operating position for logic system testing is under the administrative control of the operator. In addition, the closing of the breaker is controlled from its respective logic test panel in the Central Control Room. The logic test panel is normally locked and is also under the administative control of the operator. The status of the bypass breakers is indicated on the logic test panel located just behind the main control board.

The use of extinguished lights to confirm that the bypass breakers are in the racked out position provides a potential for misinterpretation due to loss of feed, wiring problems or malfunctions of the light, socket or switch. Bypass breaker indicating lights will not significantly reduce the the already small potential for inadvertent operation of a bypass breaker and may add a false sense of security to the operator. Attachment B to this letter contains a one page extract from PT-M14A, Rev. 16 entitled "Reactor Protection Logic Channel Functional Test". Note that the Shift Watch Supervisor (SWS) is

required to verify and sign-off proper breaker position, installation of physical locking devices and removal of control fuses. We believe these actions adequately preclude improper positioning.

Item 2: During reactor trip breaker testing, the plant operator has direct status indication that a bypass breaker is closed and therefore one train of the RTS is in a bypassed condition. If a reactor trip should occur or be initiated during testing, the operator can directly determine that each reactor trip and bypass breaker is in the open position. Breaker position status is safety significant not only with regard to control rod insertion, but also due to safety actions initiated by the P-4 interlock derived from reactor trip and bypass breaker position status switches.

Response: During reactor trip breaker testing the plant operator does not require direct bypass breaker position indication since he is well aware that testing is in progress. The performance of all such tests require the approval of the Shift Watch Supervisor (SWS) in order to proceed. In addition, the Key interlock switch, which is placed in the "Defeat" position during reactor trip breaker testing, is monitored by a locally mounted red lamp and is annunciated in the Central Control Room by a Supervisory panel alarm. If any situation were to develop where status of the bypass breaker was needed, he could walk back to the logic test panel and check the position indication or simply ask one of the technicians, already there performing the test, for the breaker status.

A bypass breaker is placed into service when a reactor trip breaker is being tested. During this period, there are still two breakers in series (one reactor trip breaker and one bypass breaker) any one of which, if tripped, will provide a reactor trip. The bypass breaker will be

tripped via the undervoltage trip mechanism upon a reactor trip demand. The operator will still require the responses noted in the Discussion to verify the reactor trip. The reactor trip breaker and bypass breaker would both need to fail in a closed position to prevent a routine reactor trip. This would be immediately apparent to the operator through the rod bottom indication, rod position indicators, the remaining reactor trip breaker indication and neutron flux indication. The operator would then attempt to manually trip the reactor by depressing the reactor trip switches, either one of which actuates the UV and shunt trip mechanisms to all four breakers. If the trip breaker and bypass breaker were still in a failed closed position the operator would trip the breakers to the MG sets which would provide a reactor trip.

Indian Point Unit No. 2 does not have a reactor trip/bypass breaker interlock or permissive to reset or block a safety injection signal. There is a feedwater isolation functioned initiated from reactor trip/bypass breaker position together with low Tavg; however no credit is taken for this function in the accident analyses. There is a turbine trip on reactor trip from either train of the reactor trip/bypass breakers and there is no reactor trip/bypass breaker interlock for steam dump.

The turbine trip function on reactor trip has safety significance under ATWS conditions. Systems currently being required for installation under 10 CFR 50.62 will provide a diverse means of tripping the turbine and initiating auxiliary feedwater, independent of breaker position. Accordingly, given the already low probability of a failure of a bypass breaker to trip resulting in an ATWS, installation of status lights will provide virtually no additional benefit once the diverse system is installed any only a negligible benefit in the interim.

Item 3: In the absence of direct position indication for bypass breakers, the position of the bypass breakers can only be inferred by the absence alarms or breakers change status obtained from computer outputs.

Response: Indian Point Unit No. 2 does not have direct position indication for reactor trip bypass breakers since it is not necessary for normal operation and is not required for verification of a reactor trip. There are adequate administrative controls to ensure that the bypass breakers are racked out and locked with their respective control fuse removed except during testing of the reactor trip breakers. The bypass breaker position can be obtained in the Central Control Room from the logic test panel, although it should only be necessary for the technician, when performing the reactor trip breaker test.

Item 4. Direct indication of safety actions including reactor trip and bypass breakers is consistent with operators actions to confirm protection system operations and in the event of any anomolous indication to initiate appropriate follow up actions consistent with plant emergency operating procedures. As noted in the Westinghouse Owners Group Emergency Response Guidelines, step 1 of the procedure for reactor trip or safety injection includes verification of reactor trip by confirming "Reactor trip and bypass breakers - OPEN."

Response: Indian Point Unit No. 2's Emergency Operating Procedures do not require bypass breaker position indication for reactor trip verification. As previously noted, bypass breaker position indication is not directly available to the operator since it is not necessary with the many responses already required to verify a reactor trip and the contingencies available to ensure a reactor trip.

CONCLUSION: The use of reactor trip bypass breakers is under strict administrative control of the operator. The bypass breakers are tested for operability prior to being placed in service and are provided with an interlock that trips both bypass breakers open if a second bypass breaker is closed. The status of the bypass breakers is available on the logic test panel in the Central Control Room. The operators are trained and provided with procedures to ensure a reactor trip even in the unlikely event of inadvertent operation of a bypass breaker.

The direct position indication of bypass breakers would be a costly modification at Indian Point Unit No. 2 with little benefit to the operator or to overall plant safety. The current administrative controls and operating procedures are adequate to provide the required reactor trip upon demand.

ATTACHMENT B

A One Page Extract from PT-M14A, Rev. 16
"Reactor Protection Logic Channel Functional Test"

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
May, 1985

ACTION:

1) If data obtained is ≤ 20 milliseconds perform a retest of Breaker Trip timing to verify the low data.
2) If data obtained is ≥ 88 milliseconds initiate a PRIORITY ONE MWR to investigate the problem. Approval for PRIORITY ONE status was given at SNSC by the General Manager NPG on 11/22/83, SNSC Meeting No. 770.
3) If data obtained is > 150 milliseconds, Operability Criteria is not satisfied.
4) Remove data from typewriter and forward to J. P. Mooney - Systems Engineer, Electrical, Technical Engineering, for trending.

Channel A _____ Initials

Channel B _____ Initials

		Channel A	Channel B
7G.	Close Reactor Trip Breaker 52RTA (52RTB) and verify it is closed by observing that the red indicating lamps at the test panel and flight panel are illuminated.	_____	_____
8.	Trip Bypass Breaker 52BYA (52BYB). Place it in the racked out position and lock it in this position. SWS to verify breaker is locked.	_____ SWS	_____ SWS
9.	Remove the control fuses from Bypass Breaker 52BYA (52BYB). SWS to verify control fuses are removed.	_____ SWS	_____ SWS
10.	Remove control fuses from Bypass breaker 52 BYB (52BYA) and lock the breaker in the racked out position. SWS to verify above actions.	_____ SWS	_____ SWS
11.	Lock the panel door of the logic channel under test.	_____	_____

3.32 Repeat this procedure for the other logic channel.