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July 25, 1997

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

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

SUBJECT: Proposed Test Procedure Changes Resulting from Reviews Performed in Accordance with Requested Action of Generic Letter 96-01: Testing of Safety-Related Logic Circuits

Pursuant to 10 CFR 50.54 (f), Consolidated Edison Company of New York, Inc. (Con Edison) provided a 60-day written response to Generic Letter (GL) 96-01 on April 18, 1996. In this response, Con Edison stated that the two actions required by GL 96-01 would be implemented. The first action, a review (including a line-by-line comparison) of electrical schematic drawings and plant surveillance test procedures for Technical Specification compliance and adequate coverage of segments of the logic circuitry, has been completed. In addition, the second action, modification of surveillance procedures as necessary for complete testing to comply with Technical Specifications, has also been completed. Surveillance test procedures selected for review as part of the first action included those related to the Reactor Protection System, Engineered Safety Features System, Blackout Logic and Degraded Voltage Logic.

Surveillance test procedures reviewed for the Reactor Protection System included the monthly tests for the bistable output logic, the logic relay matrices and the reactor trip breakers. Surveillance test procedures reviewed for the Engineered Safety Features included the monthly tests for the bistable output logic and the logic relay matrices and the refueling interval tests for master and auxiliary relay actuation and valve and motor load sequence logic. Surveillance test procedures reviewed for the Blackout and Degraded Voltage Logic included undervoltage and degraded voltage relay and auxiliary relay logic. These tests included:

a. Trip of the 480 V bus normal supply breakers on undervoltage (blackout) and degraded voltage.
b. Stripping of the 480 V bus loads on blackout.
c. Emergency Diesel Generator (EDG) start.
d. Closure of EDG output breakers.
e. 480 V load sequence logic.

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A line-by line comparison of each selected test procedure against associated schematic drawings was conducted for Con Edison by Raytheon Engineers and Constructors for all portions of the logic circuitry that perform a safety function. This comparison included:

a. Relay contacts (logic, master or auxiliary relays).
b. Parallel logic.
c. Interlocks.
d. Bypass and inhibit circuits.
e. Control and test switches.

The above reviews and comparisons were compiled in a report, "Safety Related Logic Testing and Screening Program", by Raytheon that delineated the extent of the evaluation and revealed some matters requiring further review. The report included marked test procedures and suggested changes to these procedures, as well as, suggested editorial enhancements and typographical corrections (non-safety related). The report included marked drawings that showed portions of the safety related logic circuits covered by the above selected test procedures. Where safety related logic circuits were covered by multiple test procedures, overlap or potential lack of overlap of the multiple tests was identified.

The Raytheon report was reviewed by the Nuclear Power Engineering, Nuclear Safety and Licensing, and Test and Performance organizations at Con Edison. The Reactor Protection and Engineered Safety Features Systems were found to be in compliance with Technical Specifications.

The following items were found in the degraded voltage and blackout logic test procedures. Subsequent to testing of the degraded voltage logic, there was no verification that the test switch had returned to its normal closed position. The function of this test switch is to block the tripping of the 480 V bus supply breaker by opening the trip coil circuit when the degraded voltage logic is tested.

During testing of the undervoltage relays, there was no confirmation that associated auxiliary relay contacts are made up for every logic combination and interlock. These relay contacts are used to develop multiple logic combinations and interlocks for EDG starting and blackout logic actuation. EDG starting can be initiated by any one of twelve logic combinations of blackout undervoltage relays (associated with the two 480 V buses that are supplied from offsite power during normal operation), six interlocks of safety injection auxiliary relay contacts or six interlocks of additional undervoltage relays (associated with the two 480 V buses that are supplied by the unit during normal operation). Blackout logic can be actuated by any one of eight logic combinations of blackout undervoltage relays (associated with the two 480 V buses that are supplied from offsite power during normal operation). The reviewed tests used one logic combination for EDG starts and blackout logic actuation. EDG start on safety injection from either train was verified in these tests, but it was not known whether or not the safety injection auxiliary relay or undervoltage relay (associated with the two 480 V buses that are supplied by the unit during normal operation) contact interlock actuated. The undervoltage relay interlocks that are not associated with the blackout logic are actuated with safety injection, as are the safety injection auxiliary relays.

A modification has been implemented for all four degraded voltage circuits that added a light to supervise the status of the degraded voltage test switch. The status of the degraded voltage test switch was verified following completion of the modification. The monthly and refueling interval degraded voltage tests have been revised to verify the status of the degraded voltage test switch following completion of testing.

The monthly EDG test has been revised to use varying logic combinations to start the EDGs. The refueling interval safety injection and blackout logic tests have been revised to verify the safety injection and undervoltage relay EDG start interlocks, as well as each of the blackout actuation logic combinations.

With the implementation of the above modification and the revision of the degraded voltage, EDG, safety injection and blackout logic tests, Con Edison considers the second action of GL 96-01 to be complete. Should you or your staff have any concerns regarding this matter, please contact Mr. Charles W. Jackson, Manager, Nuclear Safety & Licensing.

Very truly yours,

Stephen E. Quinn

Subscribed and sworn to before me this 25th day of July 1997.

Karen L. Lancaster

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