UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 165 TO FACILITY OPERATING LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

1.0 INTRODUCTION

By letter dated September 29, 1992, as supplemented by letters dated February 19, 1993, June 10, 1993, and July 19, 1993, the Consolidated Edison Company of New York (the licensee or Con Edison) submitted a request for changes to the Indian Point Nuclear Generating Unit No. 2 (IP2), Technical Specifications (TS). The requested changes would revise TS Table 3.5-1, Item No. 8b, to change the 480V Emergency Bus Undervoltage (Degraded Voltage) setpoint and time delays. The changes resulted from an updated calculation performed to determine the minimum motor terminal voltage required to start and run the 480V safeguard motors. The Electric Power Research Institute (EPRI) recommended calculation method provides for enhanced margin between the required bus voltage and available bus voltage to operate safety-related equipment (e.g., Component Cooling Pumps). The February 19, 1993, letter provided the calculations to support the setpoint change. The June 10, 1993, letter provided a commitment to perform a field test, following approval of the amendment, to verify the calculated system voltages. The July 19, 1993, letter provided information regarding the adequacy of the time delay associated with the undervoltage trip coincident with a Safety Injection signal. The February 19, 1993, June 10, 1993, and July 19, 1993, submittals did not change the initial proposed no significant hazards consideration and were not outside the scope of the original Federal Register notice.

2.0 EVALUATION

The purpose of the degraded grid voltage (DGV) protection system or second level undervoltage protection system is to isolate the 480 V safeguard (safety) buses (2A, 3A, 5A, and 6A) from the offsite power if the bus voltage drops below the DGV (undervoltage) relay trip setpoint and time delay limit. With the offsite power degraded, the DGV relays initiate separation of the safeguard buses from the offsite power source and load the buses onto respective emergency diesel generators (EDGs). The DGV relays are currently set at 403 V (+/-5 V) with a time delay of 180 SEC (+/-30 sec).

Recently, in order to determine the voltage requirements for Class 1E safety-related motors, the licensee has performed an analysis to determine the minimum required voltage at the motor terminals to start the motors by using the latest EPRI recommended calculation method (EPRI, NP-4917, Commercial Grade Motors in Safety-Related Applications, dated 1988). In this analysis, the licensee used the actual motor and pump curves along with the voltage drop of the feeder cable to represent actual loading conditions. In addition, the calculation method includes enhanced margins between the required and available voltages.

Based on the results of this new calculation, it was determined that the 250 horsepower Component Cooling Pumps motors were the limiting equipment in terms of required terminal voltage. Thus, Con Edison proposes to change the current DGV relays voltage setpoint limits from 403 V (+/-5 V) to 421 V (+/-6 V) and to add a time delay of 10 sec (+/-2 sec) coincident with a safety injection (SI) signal, while retaining the existing time delay of 180 sec (+/-30 sec) without a SI signal.

To implement the new DGV relays' settings, the licensee is proposing (modification No. EGP-91-06786-E) to replace the existing DGV relays (Westinghouse SV relays) with Asea Brown Boveri (ABB) type 27N relays. The ABB type 27N relays are solid-state (electronic) relays and have a high accuracy. The licensee contends that the accuracy of the new relays and proposed setpoint settings will improve the starting and running of all the safety-related equipment.

In addition to replacing the DGV relays, the licensee is making another modification to preclude any unnecessary transfers to the onsite emergency power supply during normal plant operation or unit trip. The normal power supply to the safeguard buses is from a Unit Auxiliary Transformer (UAT). Upon unit trip, there is a fast transfer to the Station Auxiliary Transformer (SAT). If the SAT voltage is also degraded, the safeguard buses are then transferred to the onsite emergency power (i.e., EDGs). This proposed modification (EGP-92-07762-E) is designed to enhance the safeguard bus voltage level through a faster response of load tap changer of the SAT by lowering the time delay from 45 seconds to 2 seconds. In addition, the modification will include automatically tripping the 6.9 kV condensate pump No. 23 on a unit trip. By tripping the condensate pump, the load that is required to be transferred from the UAT to the SAT is reduced which will provide a quick recovery of the 6.9 kV and 480 V bus voltages. Therefore a stable power supply from the SAT will further reduce any unnecessary transfers to the onsite emergency power supply during the above described conditions.

Con Edison's September 29, 1992, submittal did not include the results from the updated calculation which establishes the minimum voltage requirements for the 480 V motors and a summary of degraded voltage study. In response to our telecon inquiry of November 17, 1992, the licensee by letter dated by

February 19, 1993, provided the supporting calculations (Cal. No. EDP-00110-00) entitled, "Summary of Degraded Voltage Study dated January 22, 1993" and (Cal. No. EGE-00001-00) entitled, "Class 1E Motor Minimum Starting Voltage and Acceleration Time Calculations dated September 27, 1991." These calculations provide the basis for the new DGV relays' setpoints.

The effects of the degraded voltage on the various safety-related motors shown in the above DGV study were analyzed by using EBASCO's new computerized program, "Electrical System Management Software (ESMS) dated December 31, 1989." The licensee stated that the model used in the calculations reflects the onsite plant electrical distribution system at IP2. Although the licensee has stated that the above computer code has been written and quality assurance verified by EBASCO, Position No. 4 in PSB-1 recommends that new computer software's analytical techniques and assumptions used in the voltage analysis should be verified by an actual test. Branch Technical Position PSB-1 is contained in Appendix 8A of the Standard Review Plan (NUREG-0800). By letter dated June 10, 1993, the licensee has committed to perform the PSB-1 verification test prior to the completion of the 1995 refueling outage.

We have reviewed all the cases considered in the degraded voltage study. We have also reviewed how the licensee determined the setpoints and time delays for the DGV relays. We find that the proposed DGV relays' setpoints and time delays show adequate margin between the required bus voltage and the available bus voltage for the Component Cooling Pumps (limiting equipment). This ensures the operability of all safety-related equipment during an accident condition. We find that the proposed DGV relays' setpoints protect the Class 1E equipment for sustained degraded voltage under accident and non-accident conditions.

Therefore, we conclude that the proposed DGV setpoints shown in Item No. 8b, 480 V Emergency Bus Undervoltage (Degraded Voltage) in Table 3.5-1, are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no

public comment on such finding (57 FR 55578). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor:
P. Kang

Date: September 22, 1993

September 22, 1993

Docket No. 50-247

Mr. Stephen B. Bram
Vice President, Nuclear Power
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenue
Buchanan, New York 10511

Dear Mr. Bram:

SUBJECT: ISSUANCE OF AMENDMENT FOR INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 (TAC NO. M84694)

The Commission has issued the enclosed Amendment No. 165 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment consists of changes to the Technical Specifications (TS) in response to your application transmitted by letter dated September 29, 1992, as supplemented by letters dated February 19, 1993, June 10, 1993, and July 19, 1993.

The amendment revises the TS to amend the 480V Emergency Bus Undervoltage (Degraded Voltage) actuation setpoint. Because of the delayed effective date of this amendment, due to a required plant shutdown to effect plant modifications, please advise us in writing when the amendment has been implemented.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,
Original signed by:
Francis J. Williams, Jr., Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 165 to DPR-26
2. Safety Evaluation

cc w/enclosures:
See next page
*See previous concurrence

LA:PDI-1	PM:PDI-1	*EELB	*OGC	D:PDI-1	
CVogan	FWilliams:smm	CBerlinger	RBachmann	RACapra	
/ /93	9/22/93	09/01/93	09/08/93	09/22/93	

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