

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

April 23, 1980

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

Director of Nuclear Reactor Regulation
ATTN: Mr. A. Schwencer, Chief
Operating Reactors Branch No. 1
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Schwencer:

On February 11, 1980, Mr. Harold R. Denton of the NRC issued a Director's Decision Under 10CFR2.206 in response to a September 17, 1979 petition from the Union of Concerned Scientists (UCS). One of the issues addressed in that Decision was the UCS allegation regarding the use of automatic transfer circuits in the Indian Point Unit No. 2 station battery system. In response to that allegation, the NRC Regulatory Staff had performed a re-review of the design of the automatic transfer circuits and determined that it meets the single failure criterion. Nevertheless, the Decision indicated that the Staff was re-evaluating the acceptability of the automatic transfer feature of this system.

As part of the Staff's re-evaluation, there have been several discussions between members of the Staff and representatives of Consolidated Edison. We have emphasized our belief that the use of automatic transfer circuits results in a greater reliability of the D.C. power supply system than present-day unitized designs. However, we have also recognized that certain plant modifications are feasible which would provide even further assurance of the safety and reliability of the automatic transfer circuits. A description of these modifications is contained in the Attachment to this letter. These modifications would resolve the specific concerns of the UCS allegation while, at the same time, maintain the additional electrical system reliability provided by transfer circuits.

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Accordingly, we plan to effect the plant modifications described in the Attachment to this letter during the unit's next refueling/maintenance outage presently scheduled to begin in January, 1981.

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

Very truly yours,

A handwritten signature in cursive script, appearing to read "William J. Cahill, Jr.", written in dark ink.

William J. Cahill, Jr.
Vice President

attach.

ATTACHMENT

In the September 17, 1979 UCS Petition, it is alleged that the Indian Point Unit No. 2 station battery system is inadequate because it contains only two batteries and relies on automatic transfer switching. This design, the UCS alleges, is contrary to the requirements of Regulatory Guide 1.6.

The original Indian Point Unit No. 2 design is based on the philosophy of maintaining all engineered safeguards equipment operational following the loss of a D.C. feed. This is accomplished by the use of seven (7) automatic transfer circuits. Three (3) are associated with the D.C. control circuitry for emergency diesel generators 21, 22 and 23 and four (4) are associated with the 480 VAC switchgear D.C. control circuitry for engineered safeguards buses 2A, 3A, 5A and 6A. Presently, the primary D.C. power feeds to these seven (7) loads are split between station batteries 21 and 22. Upon loss of a D.C. control circuit and actuation of the automatic transfer circuit, the affected load is automatically transferred from the battery providing the primary feed to the other battery which provides a secondary backup feed. All other D.C. loads powered from station batteries 21 and 22 do not contain automatic transfer devices in their circuitry. These other loads are essentially safety-related D.C. control and actuation circuits and are presently divided between batteries 21 and 22 as necessary to satisfy redundancy requirements. Also, batteries 21 and 22 provide contingency power supplies to 120 VAC Vital Instrument Buses 21 and 22, respectively, through static inverters.

The original design was modified to provide station batteries 23 and 24 which were installed at Indian Point Unit No. 2 to provide contingency power supplies to 120 VAC Vital Instrument Buses 23 and 24, respectively. This modification was intended to improve plant reliability and availability by having a D.C. backup emergency power supply for each of the four (4) 120 VAC vital instrument buses. These two additional batteries are independent of the original station batteries 21 and 22 and do not interact with any of the redundant safety-related D.C. power, control and actuation loads supplied by the two original station batteries.

The UCS allegation is based on the assumption that a D.C. automatic transfer circuit is susceptible to common mode failure and does not provide an adequate degree of independence for redundant safety systems. The UCS concern is that the failure of any of the seven (7) transfer circuits could potentially cross-connect station batteries 21 and 22 causing both to become inoperable and, thereby, rendering redundant safety-related loads powered from those batteries inoperable.

Consolidated Edison continues to believe that the use of automatic transfer circuits provides greater D.C. power system reliability than present-day unitized designs. In addition, the two series circuit interruption devices between a transfer circuit and each D.C. bus are reliable and provide adequate protection against coincident loss of both D.C. buses even with the application of the single failure criterion. This was acknowledged in the February 11, 1980 Director's Decision.

Nevertheless, Consolidated Edison recognizes that certain plant modifications are feasible, utilizing the two more recently installed batteries 23 and 24, which will resolve the UCS' concern regarding batteries 21 and 22 and, at the same time, maintain the reliability provided by D.C. transfer circuits. Accordingly, during the unit's next refueling/maintenance outage, we plan to accomplish the following modifications:

- (a) Each D. C. transfer circuit will be modified to transfer between batteries 21 or 22 and batteries 23 or 24 (see the enclosed Con Edison Drawings 22641A and 22642A which provide a detailed conceptual design for the proposed change). The proposed modification utilizes batteries 23 and 24 as "swing buses" for batteries 21 and 22 and, thereby, eliminates any transferring of loads between batteries 21 and 22. This design satisfies position 4.c of Regulatory Guide 1.6 since automatic transferring of loads will not take place between redundant power sources.
- (b) The new D.C. power feeds to each redundant 480 VAC switchgear and diesel generator will be routed independently from their separate circuit breakers at the D.C. power panels to the automatic transfer circuits.
- (c) Either the existing transfer mechanism will be retained or upgraded transfer devices will be installed.
- (d) All transfer circuits will be mounted external to the switchgear and diesel generator enclosures to ensure adequate protection against postulated common mode failures and maintain maximum reliability.
- (e) CCR indication will be modified to provide status for the new transfer circuit arrangements.
- (f) Provisions will be made for periodic testing of the operation of each automatic transfer circuit. We plan to perform such surveillance testing at refueling intervals.

Therefore, as stated above, the proposed modifications preclude the potential for automatically transferring loads between redundant batteries 21 and 22 satisfying the requirements Regulatory Guide 1.6 and the UCS concerns. In addition, the reliability of the D.C. power system has been improved even further. Under the proposed system, at least two (2) of the four (4) batteries would have to fail before we would lose a single diesel generator or 480 VAC switchgear. Even in this condition, redundant loads will still be supplied by the remaining power sources.