Stephen B. Bram
Vice President

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June 25, 1993

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

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

SUBJECT: Preliminary Evaluation of Indian Point Nuclear Generating Unit No. 2, Licensee Event Report 50-247/92-007, "RPS Actuation resulting from Turbine Trip on High Steam Generator Level", Input to Accident Sequence Precursor Report for 1992.

The Attachment to this letter documents our comments on the above referenced report, as requested in your letter dated June 11, 1993. Specifically, you requested that Con Edison: 1) comment on the accident sequence precursor (ASP) analysis characterization of the possible plant response as a result of the event, 2) address whether the analysis reasonably represents the plant safety equipment configurations and capability which existed at the time of the event, and 3) comment on the analyst's assumptions regarding equipment recovery probabilities.

Our comments also provide additional information regarding system configuration and response, as well as facts involving the referenced events.

We believe the preliminary analysis transmitted by your letter of June 11, 1993, contains factual errors concerning system design, equipment design capabilities, and the configuration and capabilities for the event described in LER 50-247/92-007.

We believe that the additional information submitted herewith, in addition to correction of errors, will have a significant impact on the ASP analysis, and provide a much lower and more appropriate estimated value for the conditional probability of core damage for the subject event.

Should you have any questions regarding this matter, please contact Mr. Charles W. Jackson, Manager, Nuclear Safety and Licensing.

Very truly yours,

Michael L. Miele

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ATTACHMENT A

RESPONSE TO PRELIMINARY EVALUATION OF
INDIAN POINT UNIT 2
LICENSEE EVENT REPORT 50-247/92-007

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT UNIT NO. 2
DOCKET NO. 50-247
JUNE, 1993

PARAGRAPH B.5

The event is described as a "Reactor trip and auxiliary feedwater pump failures". This description suggests that the auxiliary feedwater (AFW) pump failed during this event. In fact, the pumps were fully capable of providing the required flow, even under the reduced suction pressure condition, but were prevented from starting by a protective feature. To more accurately reflect the condition experienced, we suggest that the event description be revised to read: "Reactor Trip and Auxiliary Feedwater Pump Protection Actuation".

PARAGRAPH B.5.1 SUMMARY

In the fifth sentence of this paragraph it is noted that one of the two motor-driven AFW pumps failed to start. As stated above, a more accurate representation of this anomaly is that the pump was prohibited from starting by its protection circuit. Accordingly, this sentence should be revised to reflect this.

PARAGRAPH B.5.2 EVENT DESCRIPTION

In line 10 of this paragraph it is noted that "No information was available concerning the turbine-driven AFW pump; presumably its operation was not demanded." We confirm that the turbine-driven AFW pump did not receive a demand to start signal, however, it would have performed its function on demand during this event. Its function was not demanded due to the immediate mitigating action of closing valve LCV-1128. The turbine-driven AFW pump's would have functioned on demand because its required net positive suction head (NPSH) was well below the low pressure transient condition existing at the suction of the motor driven AFW pump. Furthermore, as noted in the supplemental information provided in LER 92-17, the turbine-driven AFW pump does not have a low suction pressure trip. This pump's availability was further confirmed in a test subsequent to the event.

PARAGRAPH B.5.4 MODELING ASSUMPTIONS

This paragraph reflects several potential misunderstandings. First, the second sentence indicates that reduced condensate inventory to the AFW system could have occurred had the operators not responded in a prompt manner. However, there are specific system design features to ensure adequate condensate inventory. Had the operators failed to isolate valve LCV-1128, valve LCV-1158 would have closed automatically when a preset condensate storage tank level was achieved. This action would also have alleviated the low suction pressure condition (i.e., isolated the vacuum drag from the condenser). This valve-tank level control system interlock ensures a minimum water level will be maintained in the condensate storage tank to preserve AFW system inventory. Second, AFW system design provisions, as noted in our Updated Final Safety Analysis Report and in your report, include an alternate supply of water from the 1.5 million gallon city water storage tank.

Third, the omission of appropriate valve actuation and diverse makeup capability represented by the turbine drive AFW pump in your model substantially affects the analysis results. Inclusion of this capability alone would cause the analysis results to approach the cut off frequency. Moreover, an additional recovery was available through the condensate pumps, one of which continued to operate throughout this event. This steam generator makeup path does not require operation of the main boiler feed pump (MBFP) and is called for by procedure should both the AFW system and MBFPs fail. Further, the operator's response and early recognition of the problem were the result of knowledge and understanding of this phenomena, due to similar past experiences with condensate and AFW system interactions.

Lastly, in the third sentence of this paragraph, reference is made to operation of the AFW pumps with inadequate suction supply, which could result in damage to the pumps. As noted previously, the AFW pumps required NPSH is below the low pressure suction switch setpoint. Thus, the pumps were prevented from starting by a conservatively set protection device. The pumps would have functioned as designed, and were therefore not challenged by this specific condition. As a result of extensive analyses subsequent to this event, we have eliminated the trip function of the motor-driven AFW pumps low suction pressure switch, retaining only the alarm function. In regards to the fourth sentence, we confirm that a high steam generator level trip would result in the trip of the main feedwater pumps.

PARAGRAPH B.5.5 ANALYSIS RESULTS

In view of the fact that:

- o Actuation of the turbine-driven AFW pump (which was available throughout the event and would have been demanded by procedure had valve LCV-1128 not been immediately closed) was not modeled;
- o An additional, available and operating recovery path, i.e. condensate pumps, one of which continued to operate throughout this event was omitted from the model;
- o The non-recovery value assigned (i.e., 0.04) is too pessimistic in as much as the immediate response of the operators reflected a knowledge and understanding of the potential for an open path to the condenser to cause a low AFW pump suction pressure;
- o Adequate inventory to the AFW system was never threatened given the automatic control features of valve LCV-1158 mentioned previously; and
- o Automatic operation of LCV-1158 would allow the start (automatic and/or manual) of both motor-driven AFW pumps,

it is our assessment that the estimated conditional probability of core damage of 2.9E-4 is too high and excessively overstates the true risk significance of this event. We believe that the additional information provided herein calls for a conditional core damage probability below the accident sequence precursor cutoff (i.e., 1E-6).