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November 6, 1997
Re: Indian Point Unit No.2
Docket No.50-247

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

SUBJECT: Reply to Inspection Report 50-247/97-08; Notice of Violations

The attachment to this letter constitutes Con Edison's reply to the Notice of Violations (NOV) included with the NRC October 7, 1997 letter based upon the inspection conducted from June 16, 1997 through July 21, 1997 at the Indian Point 2 facility and the Predecisional Enforcement conference held on September 5, 1997. An electronic funds transfer in the amount of one hundred and ten thousand dollars ($110,000) in payment of the proposed civil penalty has been made to the NRC account.

As specifically requested in the October 7, 1997 letter, Con Edison has taken the following actions to ensure that there are no other anomalies involving safety-related systems at Indian Point 2 that are being handled informally. Accordingly, there is a high degree of confidence that there are no anomalous conditions in safety related systems that are being handled informally.

At the direction of senior licensee management, meetings were held by all Nuclear Power departments and by Engineering to specifically ask if personnel were aware of any anomalies involving safety related systems and if so, to identify them in the condition identification and tracking system (CITRS). Following these meetings an increase in CITRS entries was noted, many of which were already identified in the work order system. In addition, personnel were reminded of their responsibilities to enter non-conformances into the corrective action system. The subject matter of this notice of violation and the NRC's imposition of the proposed civil penalty were also communicated toNuclear Power and Engineering personnel via the station newsletter. Both the personnel meetings and the newsletter article stressed the importance that anomalous conditions be identified in our formal reporting system(CITRS), that there be aggressive analysis of the condition and that there be identification and correction of the factors surrounding the cause of the condition. A communication reiterating these requirements to all

Nuclear Power and Engineering personnel will be completed by November 12, 1997. Station Administrative Order (SAO) 113, "Open Item Reports, Deficiency Reports, and Stop Work Authority," was recently revised to provide for increased levels of management oversight for open item reports and responses. Further, we have developed additional guidance on the corrective action system that will be provided to all Nuclear Power and Engineering personnel. Specific hands-on training will be provided to Nuclear Power and Engineering personnel on the use of the CITRS computer system for entry of items into the corrective action system. The Nuclear Power Quality Assurance organization will provide the oversight and monitoring of these activities.

Con Edison recognizes the need to take action to address the several areas of performance inadequacies highlighted in the October 7, 1997 NRC letter. The management team at Indian Point has initiated both short and long term activities to address these issues. Our actions related to investigation and corrective action of the pressurizer safety valves and the DB-50 circuit breakers are positive examples of these activities. We believe that the management attention being applied will lead to performance improvements at the plant.

Although we have not provided specific responses in this letter to the more general concerns expressed in the NRC letter, we acknowledge the need for improvement in those areas, and have increased (and continue to increase) our senior management oversight of station activities. We look forward to meeting with NRC staff and senior management from time to time to discuss our progress and ensure NRC's concurrence with those efforts.

Very truly yours,

Thomas Coman

Subscribed and sworn to
before me this 6th day
of November, 1997.

Karen L. Lancaster
Notary Public

KAREN L. LANCASTER
Notary Public, State of New York
No. 50-4843858
Qualified In Westchester County
Term Expires 9/30/99

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ATTACHMENT

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT UNIT NO. 2
DOCKET NO. 50-247
NOVEMBER 1997

RESPONSE TO NOTICE OF VIOLATION

VIOLATION I.A.

Technical Specification (TS) 3.1.A.4.a. states, except as permitted by Table 3.1.A-2, the overpressure protection system (OPS) shall be armed and operable when the RCS temperature is less than or equal to 305°F. TS Table 3.1.A-2 states that OPS is not required to be operable at or below 305°F if the conditions of Column I are met for the specified conditions. Column I requires, that with a maximum number of 3 charging pumps and one safety injection pump energized, operating restrictions identified in TS Figure 3.1.A-3 shall be observed. Use of TS Figure 3.1.A-3 requires pressurizer level less than or equal to 30%.

TS 3.1.A.4.b. states, in part, that if both power operated relief valves (PORVs) and their associated block valves are inoperable, action shall be initiated immediately to place the reactor in a condition where OPS operability is not required.

Contrary to the above, between 2:30 a.m. on June 15 until 10:15 a.m. on June 17, 1997, Con Edison did not operate within the restrictions of TS Figure 3.1.A-3, in that pressurizer level was greater than 30% (as high as 80%) with the OPS inoperable and Con Edison did not initiate immediate actions to place the plant in compliance with the TS until the NRC raised questions about the OPS TS curves. **(01013)**

Reply to Violation I.A.

Con Edison concurs that the requirement to maintain pressurizer level below 30 percent per the guidance provided in a note on Technical Specification (TS) Figure 3.1.A-3, was not fully complied with, as stated in the notice of violation. The RCS was being vacuum filled per System Operating Procedure (SOP) 1.1.1, Rev. 5. One pressurizer safety valve had been removed per procedure to provide a required vent path for the RCS refill. The fill proceeded until the pressurizer level was at 85 percent (cold calibration) per the procedure. The removed pressurizer safety valve was subsequently reinstalled. At this time, the RCS overpressure protection system (OPS) was inoperable due to system maintenance. TS Table 3.1.A-2 requires either a vent path from the RCS or the RCS pressure / temperature requirements of TS Figure 3.1.A-3 to be met. SOP 1.4.7, Rev.7, "Overpressure Protection System (OPS) Operation," has the requirements for actions when OPS is inoperable and in use. When the pressurizer safety valve was reinstalled, section 1.6.3.1 of SOP 1.4.7 directed the operators to maintain RCS pressure within the acceptable region of the pressure / temperature graph of TS Figure 3.1.A-3. When the vent path provided by the removed pressurizer safety valve was no longer available, Figure 3.1.A-3 was then applicable. This figure states in a note that "Use of this curve requires pressurizer level less than or equal to 30 percent." Pressurizer level was at 80 percent, violating this TS requirement. The procedure for this evolution was unclear. Outage planning for evolutions during the ongoing maintenance was incomplete in not detecting the impact of RCS refill when OPS is inoperable.

A contributing factor to this event was determined to be an inadequate procedure for and an infrequently

performed evolution of Reactor Coolant System (RCS) vacuum filling and venting concurrent with maintenance activities on OPS-associated equipment. The procedural guidance did not refer to, or require verification of the OPS operability prior to or during the RCS vacuum fill evolution, nor did it address the size of available vent path with the vacuum fill apparatus that was attached to the pressurizer safety flange. In addition to the procedural issue, the concurrent performance of maintenance on equipment associated with the OPS rendered the power operated relief valves (PORVs) inoperable.

The corrective actions taken to prevent recurrence are discussed in our reply to Violation I. B.

VIOLATION I.B

> Technical Specification 6.8.1 requires that written procedures be established covering activities referenced in Appendix A of Regulatory Guide 1.33, November 1972. Regulatory Guide 1.33, Section 3.A, requires, in part, written procedures for filling and venting the Reactor Coolant System.
>
> Contrary to the above, as of June 17, 1997, an adequate written procedure for filling and venting the Reactor Coolant System was not established, in that System Operating Procedure SOP 1.1.1, "Vacuum Filling and Venting the Reactor Coolant System," Revision 35, did not refer to, nor require verification of, the operability of OPS during an RCS fill evolution. As a result, after vacuum filling and venting the RCS on June 14, 1997, when the OPS was inoperable, while the system was maintained within the pressure and temperature limits imposed by TS Figure 3.1.A-3, the pressurizer level was outside the requirements of TS Figure 3.1.A-3. **(01023)**

Reply to Violation I.B

Con Edison concurs that System Operating Procedure SOP 1.1.1, "Vacuum Filling and Venting the Reactor Coolant System," Revision 5, did not refer to, nor require verification of, the operability of OPS during an RCS fill evolution. SOP 1.1.1 revision 5 was in effect as of June 5, 1997. The RCS was being vacuum filled per System Operating Procedure (SOP) 1.1.1, Rev. 5. One pressurizer safety valve had been removed per procedure to provide a required vent path for the RCS refill. The fill proceeded until the pressurizer level was at 85 percent (cold calibration) per the procedure. The removed pressurizer safety valve was reinstalled. At this time, the RCS overpressure protection system (OPS) was inoperable due to system maintenance. TS Table 3.1.A-2 requires either a vent path from the RCS or the RCS pressure / temperature requirements of TS Figure 3.1.A-3 to be met. SOP 1.4.7, Rev.7, "Overpressure Protection System (OPS) Operation," has the requirements for actions when OPS is inoperable and in use. When the pressurizer safety valve was reinstalled, section 1.6.3.1 of SOP 1.4.7 directed the operators to maintain RCS pressure within the acceptable region of the pressure / temperature graph of TS Figure 3.1.A-3. When the vent path provided by the removed pressurizer safety valve was no longer available, Figure 3.1.A-3 was then applicable. This figure states on it in a note "Use of this curve requires pressurizer level less than or equal to 30 percent." Pressurizer level was at 80 percent, violating this TS requirement. The procedure for this evolution was unclear. Outage planning for evolutions during the ongoing maintenance was incomplete in not detecting the impact of RCS refill when OPS is inoperable. The vacuum refill system and SOP 1.1.1 were first utilized during the 1995 refueling outage. Familiarity with this process

(vacuum refill) was limited due to it being implemented only in the prior refueling outage. Operations administrative order (OAD) 15, "Policy for Conduct of Operations", discusses the responsibilities and expectations that operations staff adhere to the TS. This expectation was the rationalization for the TS requirements of OPS operability to not be explicitly delineated in SOP 1.1.1. The procedural inadequacy of SOP 1.1.1, and a less than adequate plant staff knowledge related to OPS and applicable TS, led to this violation. In addition, since the need to control level to comply with TS was not recognized, the provisions of TS 4.18.C were likewise not complied with. Further, the periodicity that OPS is placed in service with concurrent work on associated system equipment is infrequent. Another contributing factor leading to this violation is that the outage schedule did not establish a "hard schedule logic" for OPS operability prior to vacuum refill. The outage schedule did not ensure completion of testing related to OPS operability before relying on the PORV's as a vent path. The activity was not managed as an infrequently-performed test or evolution. This allowed the performance of work on OPS-associated equipment which rendered the PORV's inoperable and contributed to this violation. As such, future RCS vacuum fill activity will be handled as an infrequently performed evolution and will be controlled by SAO-202, "Conduct of Infrequently Performed Test or Evolutions." The pre-job briefing requirement for infrequently performed evolutions has been procedurally incorporated into SAO-202. The pre-job briefing requirement for infrequently performed tests or evolutions is intended to improve communications and facilitate a heightened awareness of the evolution. Training for operations personnel in the area of OPS and the associated Technical Specification requirements has been completed. The establishment of a "hard logic" for OPS operability as a prerequisite to vacuum refill for future outages will be completed by April 30, 1998.

VIOLATION I.C

> Technical Specification surveillance requirement 4.18.C., states that, when pressurizer pressure and level control is being used for overpressure protection, as permitted by TS 3.1.A.4, then these parameters shall be verified to be within their limits at least once per shift.
>
> Contrary to the above, between June 15 and 17, 1997, while the OPS was inoperable and pressurizer pressure and level control were being used for overpressure protection, operators did not adequately verify parameters were within limits, in that pressurizer level was not maintained less than or equal to its limit of 30%. **(01033)**

These violations are classified in the aggregate at Severity Level III (Supplement 1).
Civil Penalty - $55,000

Reply to Violation I.C

Con Edison concurs that the TS section 4.18.C requirement for once per shift verification of pressure and level to be within limits, when used for over pressure protection as permitted by TS 3.1.A.4, was not performed. The once per shift verification and recording of RCS level was performed. However, since the need to control level to comply with TS limits was not recognized, the provisions of TS 4.18.C were likewise not complied with. The contributing factors to this event and the corrective actions are discussed in our reply to violation I.B above.

VIOLATION II

10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, deficiencies, and deviations, defective material and equipment are promptly identified and corrected.

Contrary to the above, between September 1995 and May 1997, a condition adverse to quality existed at the facility, namely, degradation of the performance of the No. 21 recirculation pump. The degradation involved reduced pump differential head as determined during the periodic refueling outage surveillance test, which was very near the lower limit of 475 feet when tested in 1995. Subsequently, during the same test in May 1997, the pump failed its surveillance test, in that pump differential head was found to be 471 feet. Following examination of the pump internals, a rubber hose was found wrapped around the impeller, and was believed to have been drawn into the pump prior to or around 1989. Under certain conditions, this pump would not have been able to perform its post-accident safety function and thus would have been inoperable, contrary to Technical Specification 3.3.A.1.f. This adverse condition to quality was not identified despite prior opportunities to do so, in that:

1. prior to 1989, pump differential head, as identified during the surveillance test conducted each outage, was in the range of 520 feet. Beginning with the 1989 test thru the 1995 test, differential head was determined to be around 480 feet, providing clear evidence of some pump degradation; and

2. following the pump test in 1995, an engineer brought a concern to management's attention regarding the degraded pump performance since 1989, and also predicted that the pump would not pass the next test in 1997, yet the engineer's concern was not entered into the problem identification system to ensure a formal review of the concern was performed. **(02013)**

This violation is classified at Severity Level III (Supplement 1).
Civil Penalty - $55,000

Reply to Violation II

Con Edison concurs that a condition adverse to quality existed at the facility, namely, degradation of the performance of the No. 21 recirculation pump (21 RP). This degradation involved reduced pump differential head as determined during the periodic refueling outage surveillance test, which was very near the lower limit of 475 feet when tested in 1995. The reason for this degraded performance was determined to be due to the introduction of rubber hose to the recirculation sump and eventual entanglement at the pump impeller.

Surveillance tests of 21 RP prior to May 1997 met the acceptance criteria in PT-R16 and were acceptable. Changes in pump performance were within the program acceptance limits and the pump tests were considered satisfactory within the narrow focus of the test limits.

PT-R16 surveillance testing during the 1997 RFO obtained a pump differential head of 471 feet, a value

that is below the test acceptance limit. The pump was replaced. Subsequent inspection of the removed pump internals resulted in the discovery of the hose. (Previous attempts in May 1989 to inspect the recirculation pump internals were limited to looking into the suction bell using inspection mirrors. No debris was noticed in 1989 using this inspection technique).

In our effort to predict the effect of the hose during dynamic conditions of a design basis accident (DBA) that would require operation of the recirculation pumps, a justification for past operation (JPO) was performed. This JPO assumed an additional 10 feet of head loss beyond that determined in the 1997 test to assess past pump performance. Such a determination is based upon the assumption that pump degradation is represented by a uniform head loss at all points on the pump head / flow curve. This assumption gives a greater percentage of degradation at higher flows. System calculations and assessments were performed using a uniformly degraded pump curve based on a data point of 460 feet and 160 gpm. The results of this assessment show that 21 RP with its performance curve degraded to the test value would have met all of the minimum flow requirements and would have been operable. Other hypothetical failure modes were evaluated by Con Edison and were found to result in pump inoperability, although sufficient redundancy in system components exists to assure that post accident safety functions would have been satisfied.

The following corrective actions have been implemented to prevent recurrence: 1) the foreign material exclusion controls procedure (SAO 150, "Foreign Material Exclusion and Control Maintenance") has been revised subsequent to the time of rubber hose introduction to the pump impeller; 2) the corrective action process (Station Administrative Order ((SAO)) 113, "Open Item Reports, Deficiency Reports, and Stop Work Authority") has been revised to provide increased levels of management oversight for open item report's and responses; 3) the various Nuclear Power and Engineering departments held meetings with their respective staffs to reiterate the requirements of the Indian Point 2 corrective action program as documented in SAO 113; and 4) the subject matter of this notice of violation and the NRCs imposition of a civil penalty was further communicated to plant personnel via the station newsletter. Both the personnel meetings and the article stressed the importance that anomalous conditions be identified in our formal reporting system, that there be aggressive analysis of the condition and that there be identification and correction of the factors surrounding the cause of the condition.

VIOLATION III

Technical Specification 4.2.1 requires, in part, that inservice testing of pumps and valves whose function is required for safety shall be performed in accordance with the applicable edition and addenda of Section XI of the ASME Boiler and Pressure Vessel Code of 10 CFR 50.55a(g). Since 1994, the applicable edition and addenda of Section XI for Indian Point 2 has been the 1989 edition. ASME Section XI (1989 edition) section IWV-1100, Valve Test, refers to ASME/ANSI OM-1987, Part 1. Paragraph 8.1.1.5 of this document states that the operating environment shall be simulated during set pressure testing of safety valves. The implementing procedure to test pressurizer safety valves is PT-R5A, Hot Setting of Pressurizer Safety Valves by Wyle Labs.

Contrary to the above, in April 1995, during performance of PT-R5A, Con Edison failed to implement the provisions of ASME/ANSI OM-1987 part 1, paragraph 8.1.1.5, in that the operating environment was not adequately simulated during set pressure testing. Specifically, ambient conditions surrounding the pressurizer code safety valves were not incorporated into procedure PT-R5A. **(03014)**

This violation is classified Severity Level IV (Supplement 1).

Reply to Violation III

Con Edison concurs that the provisions of ASME/ANSI OM-1987 part 1, paragraph 8.1.1.5 were not implemented in that the operating environment was not adequately simulated during set point pressure testing. Specifically, ambient conditions surrounding the pressurizer code safety valves were not incorporated into procedure PT-R5A. A contributing factor to this citation is the recent adoption of ASME /ANSI OM-1987 part 1, and that it contains an inadequately precise definition of "ambient temperature."

A justification for past operation (JPO) was completed to evaluate safety valve setpoints outside the tolerance band specified in the IP-2 TS and / or ASME OM-1 criteria. FSAR transient and accident analysis for pressures ranging from 2439 psia to 2600 psia were evaluated by the JPO. The results demonstrate that the previously evaluated pressure and DNB limits were not exceeded. The corrective actions taken were the identification of location specific ambient temperatures for the pressurizer safety valves, the inclusion of these new ambient temperatures to PT-R5A test acceptance criteria, and plant shutdown to retest the valves. We have referred this issue to the appropriate ASME code committee. Valves, other than the pressurizer safeties, that are tested under the provisions of ASME / ANSI OM-1987 part 1 have been identified in our corrective action program (CITRS# 96-E02411) and are being evaluated.