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August 14, 1997

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

Document Control Desk
Office of Nuclear Reactor Regulation
Mail Station PI-137
Washington, DC 20555

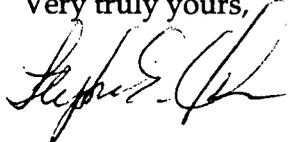
SUBJECT: Reply to Notice of Violation, NRC Inspection Report No. 50-247/97-06

The attachments to this letter comprise Consolidated Edison Company of New York's ("Con Edison") reply to the July 16, 1997 Inspection Report No. 50-247/97-06 and Notice of Violation ("NOV"). While we acknowledge the violations, we do not fully agree with all of the assessments listed under each violation. Specific actions taken or planned to prevent recurrence of the violations are included for the assessments with which we concur. For those assessments with which we do not concur, the basis for disputing the violation is included. Our reply to the NOV is contained in Attachment A.

An assessment of the MOV Program is currently being performed by an independent group. The results of this assessment will be used to determine any actions to be taken to improve the overall program as well as to prevent any recurrences of the acknowledged violations. We expect this assessment to be completed in September of this year.

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

Very truly yours,



Attachments

IED/

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PDR ADDCK 05000247
G PDR



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ATTACHMENT A.

REPLY TO NOTICE OF VIOLATION
INSPECTION REPORT NO. 50-247/97-06

CONSOLIDATED EDISON COMPANY OF NEW YORK
INDIAN POINT NO.2
AUGUST 1997

REPLY TO NOTICE OF VIOLATION

Violation 1.

10 CFR 50, Appendix B, Criterion III, "Design Control," requires in part that "... measures shall be established to assure that applicable regulatory requirements and design basis for structures, systems, and components are correctly translated into specifications, drawings, and procedures."

Con Edison procedure CI-240-1, "Quality Assurance Program for Operating Nuclear Power Plants", describes the quality assurance program for Indian Point Unit 2. Section II of procedure CI-240-1 states, that "Engineering and/or Nuclear Power, as applicable, are responsible for establishing control measures including design review and test programs that assure adequacy of design." Section 5.16 of the Engineering Operations Manual (EOM) "Preparation and Review of Design and Engineering Analysis," states "The calculation shall be reviewed to ensure that it is adequate to meet the purpose stated in the objective and that the results are valid."

Contrary to the above, from August 2, 1995, (the date by which the licensee committed to complete its Generic Letter 89-10 program), until March 31, 1997, (the date an NRC Motor Operated Valve (MOV) inspection had started) Con Edison did not ensure that valid, up-to-date design inputs were used in safety-related MOV thrust calculations. As evidenced by the following examples:

- 1) The assumed value for load sensitive behavior was found to be incorrectly derived, inadequately analyzed and improperly applied for MOVs that were not dynamically tested.
- 2) Thrust calculations did not properly account for Limitorque motor sizing factors, (called MOV Application Factors).
- 3) The design margins for MOVs 789, 885A/B, and FCV-625 was reduced and design basis capability was not adequately assured because important assumptions such as load sensitive behavior and valve factors were incorrectly applied in design calculations.
- 4) Design calculations for MOVs 885A/B that were susceptible to pressure locking utilized out-of-date valve factor assumptions, which did not accurately reflect actual measured parameters.

Reply to Violation 1.

- 1) We agree that the use of displacement measurement transducers (DMT), and low differential pressure test data will not adequately measure load sensitive behavior (LSB). This data has been removed from LSB analysis. However, the removal of that data from the data set had a minimal impact on the LSB margin value in that it would have resulted in an LSB margin change of approximately 1%.

A margin for load sensitive behavior has been established based on the remaining data points. This margin encompasses all applicable test data to date. A calculation has been prepared in accordance with station procedures to document this basis. The results of the calculation and the application of the LSB margin are discussed in the MOV Program Plan.

- 2) We disagree that Limitorque's "sizing" equation requires the use of a 0.9 application factor (AF). Con Edison utilized B&W's motor operated valve evaluation (MOVE) software to determine the thrust and torque requirements for GL 89-10 MOVs. This program uses an application factor of 1.0 for evaluating the "capability" of an existing installed actuator. At Con Edison's request B&W sought and obtained Limitorque concurrence for the AF used in the MOVE software. The basis for that concurrence was the difference between "sizing" new installations and "evaluating" the capability of an existing installed actuator.

Limitorque's concurrence with B&W's use of an application factor of 1.0 for existing actuator was provided to Con Edison in a letter from Limitorque to B&W dated May 5, 1993. In Limitorque Technical Update 93-03, issued less than four (4) months later in September 1993, relating to Start Torque at High Ambient Temperature, Limitorque restated its position (0.9 AF) with regard to use of its standard "sizing" procedure.

Recognizing that the plant specific guidance previously in hand distinguished between the use of AF's for "sizing" (new installation) and "evaluating" the capability (existing installations), it was appropriately concluded that information contained in the update did not represent a change in guidance.

Accordingly, we conclude that the Con Edison thrust calculations properly accounted for Limitorque motor sizing factors consistent with the guidance provided by Limitorque and therefore no violation occurred.

In order to remove any ambiguity caused by the use of the AF for evaluation versus sizing, Con Edison now uses an application factor of 0.90 in accordance with the guidance provided in Limitorque Technical Update 93-03.

- 3) We acknowledge and concur with the NRC's assessment. The valve factors used for MOVs 885A/B and FCV-625 were based on the second highest valve factor obtained from testing all Anchor Darling Double Disk Gate valves tested at greater than 50% of design basis differential pressure. It was believed that the highest valve factor was anomalous and therefore discarded. This process was described in the Thrust Margin Calculation. Valves 885A/B are currently evaluated using EPRI PPM methodology and have adequate margin. FCV-625 is currently evaluated with a close valve factor of .26 based on the differential pressure testing of 851A/B at greater than 50% of design basis differential pressure testing of both FCV-625 and 851A/B. The available valve factor for FCV-625 is 0.48 (accounting for lubrication degradation and LSB).

MOV 789 valve factor of 0.50 is based on differential pressure testing of MOV 786. The available valve factor is 0.58, accounting for lubrication degradation and LSB.

Guidance from the NRC states that the best available information comes from plant specific test information. This was the philosophy of the Con Edison MOV Program. Therefore valves were tested at any available differential pressure that could reasonably be obtained. There are no other 3"1500# Class Crane valves in the GL 89-10 MOV Program. Therefore the valve factor for MOV 786 was used to determine the minimum required thrust for MOV 789. This is considered the best available information for MOV 789. Con Edison continues to evaluate all relevant data to determine the most appropriate valve factor for MOV 789.

A valve factor basis document is being prepared to document the source of all applied valve factors for Con Edison gate and globe valves not evaluated with EPRI PPM. In addition, an available valve factor calculation and a thrust margin calculation are being prepared. These documents are scheduled to be completed by October, 1997.

LSB was not applied to 789 properly, in that the differential pressure of the dynamic test was too low to determine if LSB was present. The use of zero margin for the LSB in the Thrust Margin Review was incorrect. The current settings for MOV 789 applies an LSB margin in accordance with MOV Program plan requirements.

- 4) We disagree with the NRC's assessment. The design calculations for pressure locking thermal binding (PLTB) susceptible MOVs were prepared using the most current information available. If test information was available for the particular valve, it was used. Otherwise, design valve factors were used.

Valves 885A/B were not able to be tested at differential pressure conditions. Therefore, the design valve factor of 0.30 was used to perform the PLTB analysis. The actuator capability was reviewed to determine the maximum valve factor that the valve could open against under PLTB conditions. It was determined that the maximum valve factor for this valve was 0.62. This was done to assess valve factor margins in view of the uncertainties associated with the selection of appropriate valve factors and the PLTB calculation methodology.

Subsequently, in connection with margin assessments performed to close out GL 89-10 work, it was determined that a more appropriate valve factor for this valve was 0.37. Since, the valve would operate against a 0.62 valve factor, the change in valve factor was within the capability of the actuator and a revision of the calculation was not explicitly required.

Violation 2

10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings" requires, in part, "... activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Contrary to the above, from August 2, 1995, (the date by which the licensee committed to complete its Generic Letter 89-10 program), until March 31, 1997, (the date an NRC Motor Operated Valve (MOV) inspection had started) Con Edison did not establish and maintain program documents that adequately described how the design basis capability of CON EDISON MOVs was developed. MOV program documents and procedures were out-of-date, or contained contradictory or conflicting information, such as:

- 1) Position Paper 11, "Load Sensitive Behavior/Rate of Loading," stated that MOV thrust would be increased to account for the effects of load sensitive behavior (LSB) only when the measured value for that MOV was greater than equipment error. More correctly, a value for LSB was applied (in thrust calculations) to all MOVs, regardless of the measurement error.
- 2) The MOV Program Manual stated that MOV thrust would be increased by 20%, or more, to account for lubricant degradation. This statement on lubricant degradation conflicted with Position Paper 5, "Lubrication Degradation," which indicated MOV thrust would be increased by 10.5% to account for lubrication degradation.

- 3) Certain MOV program documents did not exist. ...SE-SQ-12.315, "MOV Thrust/Torque Window Calculation Procedure." This procedure had not been written as of April 1997.
- 4) Position Paper 9, "DP Extrapolation Methodology," stated data would be used only if test conditions exceeded 50% of the design basis requirements. However, LSB and valve factor data from low differential pressure test (below 50%) were, in several instances, included in MOV calculations.
- 5) Position Paper 1, "Position Paper Policy," indicated that program documents were part of a "living program" that would be revised to reflect program changes. However, none of the Position Papers had been revised since May 1995, though Con Edison had changed program assumptions that accounted for LSB, lubricant degradation and diagnostic uncertainty.
- 6) Although Con Edison used a computer-based program to evaluate MOV performance, it was not described in the current MOV tracking and trending procedure SE-SQ-12.313.

Reply to Violation 2.

- 1) We concur with your assessment. Position Paper 11, was revised, in May of 1995, to reflect a new position on accounting for LSB. This new position was to apply the complete percentage difference (static thrust minus dynamic thrust,) if negative, as LSB. The revision contained a typographical error, in that the intent of the change was to also delete the previous reference to the requirement that the thrust difference be greater than the equipment error before it was applied as LSB or, that only the part greater than the equipment error would be applied as LSB. The revision did state, however that 10% margin would be applied as LSB for valves not dynamically tested.

The correct application of the position paper was to apply the 10% margin to all MOVs not tested and the measured thrust difference as LSB for those valves that were tested. This was performed in accordance with the position paper. The typographical error has been corrected and the current LSB position is documented in the program plan and supporting calculation.

- 2) Although the statement is correct we disagree with the NRCs assessment of it. Position Paper 5, was revised to reflect a new position on lubrication degradation. This new position was to apply a 10.5% margin for thrust loss due to lubrication degradation over the lubrication cycle. However, the program plan was not revised to reflect this position although the position papers were considered to be part of the program plan. The position was applied in accordance with the position paper.

As was required by the program plan, the position papers were considered to be living documents reflecting issues that were under development within the industry and the program plan was intended to reflect the remaining program attributes. Our policy was to update position papers on an as needed basis and to revise the program plan prior to each refueling outage. Therefore conflicts between these documents prior to preparation for a refueling outage could exist. To avoid potential inconsistencies Con Edison has incorporated the position papers into the text of the program plan and will revise the program plan, as necessary to reflect changes in practices consistent with the guidance of GL 89-10.

- 3) We concur with your assessment. This procedure was planned to be developed to assist personnel not familiar with the MOV program in performing thrust/torque calculations. These calculations were developed in accordance with approved Engineering Procedures. The reference to procedure SE-SQ-12.315 has been deleted from the Test Evaluation for Gate and Globe Valves Procedure.
- 4) We disagree with the NRC's assessment. The purpose statement of Position Paper 9 states that the document provides the methodology to extrapolate test data from the test conditions (if greater than 50% of design basis conditions) to design basis conditions. This was to allow evaluation of data to determine if the as-left thrust at partial design basis conditions was greater than the thrust required at design basis conditions. It stated that the extrapolation of tested thrust data below 50% of design basis conditions must be evaluated to determine the appropriate method of extrapolation. Therefore there was no violation of the guidance contained in this position paper.
- 5) We disagree with your assessment. With the exception of the typographical error contained in the LSB position paper, as previously discussed in item 1, Con Edison MOV Program position papers were brought up to date and were consistent with current MOV program practices at the end of the 95RFO. There were no changes to program assumptions regarding diagnostic uncertainty. The MOV Program plan was not brought up to date regarding lubrication degradation. As previously discussed the position papers were updated as the conditions warranted while the program plan was intended to be updated only once per refueling cycle.

The latest revision to the program plan eliminated position papers. The lubrication degradation, coefficient of friction, and load sensitive behavior position papers were developed into calculations and summarized in the program plan. The extrapolation methodology is incorporated into the test evaluation procedure.

Con Edison now revises its program plan on an as-needed basis to ensure GL 89-10 program implementation is in accordance program documents.

- 6) We disagree with your assessment. The tracking and trending program was not implemented at the time of the NRC inspection. The tracking and trending forms of the existing procedure were implemented and filled out prior to the NRC inspection, but the data reflected only one complete set of parameters for each valve. The data from the 1997 refueling outage (RFO) would complete the first half set (1993RFO and 1997RFO.) The second half set is intended to be completed during the 1999RFO.

The procedure did not reference the computer program which itself was not the complete basis of the tracking and trending program but only a small portion of the analysis of performance data. The computer program is only a tool to facilitate the analysis performed by the MOV Engineer. It plots data from the data base against similar valves for which the comparison makes sense. The computer program is not a required element of the tracking and trending program. It was intended to upgrade the tracking and trending program procedure in the future to incorporate some of the features of the computer program.

The computer program is considered an enhancement to the tracking and trending program. The full implementation of the tracking and trending program is scheduled to be complete by October 1997 with the entry of all 1997RFO data.