Commonwealth Edison Company
1400 Opus Place
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March 15, 1997

ComEd

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Attn: Document Control Desk

Subject: Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
Dresden Station Units 2 and 3
LaSalle County Station Units 1 and 2
Quad Cities Station Units 1 and 2
Zion Station Units 1 and 2

Commonwealth Edison Company (ComEd) Response to NRC Generic Letter (GL) 96-05, "**PERIODIC VERIFICATION OF DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES,**" dated September 18, 1996.

NRC Dockets 50-454 and 50-455
NRC Dockets 50-456 and 50-457
NRC Dockets 50-237 and 50-249
NRC Dockets 50-373 and 50-374
NRC Dockets 50-254 and 50-265
NRC Dockets 50-295 and 50-304

References: (a) NRC Generic Letter 96-05, "PERIODIC VERIFICATION OF DESIGN-BASIS CAPABILITY OF SAFETY-RELATED MOTOR-OPERATED VALVES," dated September 18, 1996.

(b) J. Hosmer letter to U.S. NRC, dated November 13, 1996; ComEd Response to GL 96-05.

The NRC staff issued the Reference (a) letter to (1) discuss the periodic verification of the capability of safety-related motor-operated valves (MOVs) to perform their safety functions consistent with the current licensing bases of nuclear power plants, (2) request that licensees implement certain actions, and (3) require that licensees provide to the NRC a written response to this generic letter relating to implementation of the requested actions. By Reference (b), ComEd provided its initial response to the Reference (a) letter. Within Reference (b), ComEd committed to provide a 180-day response to GL 96-05 prior to March 15, 1997. The purpose of this letter is to satisfy ComEd's commitments regarding GL 96-05.

In GL 96-05, the NRC staff requested that all licensees provide a written response, within 180 days, describing the following information:

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"Within 180 days from the date of this generic letter, or upon notification to NRC of completion of GL 89-10 (whichever is later), the addressee shall submit a written summary description of its MOV periodic verification program established in accordance with the Requested Actions paragraph or the alternative course of action established by the addressee in response to item 1 above [Note: item 1 refers to the 60 day response]."

ComEd has reviewed the requested information provided within Generic Letter 96-05. ComEd's 180-day response describing our implementation of the actions as described above for each of the six stations is summarized as follows:

All six of ComEd's Nuclear Stations have implemented a program, to verify, on a periodic basis, that all safety-related MOVs encompassed by the Stations' GL 89-10 programs, including Emergency Core Cooling System (ECCS) test return lines for BWR plants, are within the current licensing bases of each of the Stations.

ComEd's periodic verification program consists of three parts:

ComEd will use the methodology described in American Society of Mechanical Engineers (ASME) OM-8 Code Case OMN-1 for periodic verification to fulfill the requirements of GL 96-05 with the clarifications discussed below. ComEd will continue to perform Inservice Testing (IST) requirements in accordance with each Station's IST Program.

ComEd will participate in the joint Boiling Water Reactor Owner's Group (BWROG)/Westinghouse Owner's Group (WOG) Joint Owner's Group (JOG) Periodic Verification program. ComEd will provide test data for this program and will incorporate applicable lessons learned from the program into the ComEd periodic verification program for MOVs.

ComEd will determine testing frequency based on margin assessment and safety significance. In addition to testing required by the BWROG/WOG, ComEd will differential pressure (DP) test low margin valves as required by ComEd's program.

ComEd has the following clarifications on applying the OMN-1 methodology to our periodic verification program:

Paragraph 3.3(b) - Maintenance activities, including stem lubrication, may occur between periodic verification tests; therefore, most of the valves will not be tested in the as-found condition. ComEd will analyze the data from as-found tests to determine rates of degradation and apply these degradation rates to the remaining MOVs in order to determine the length of the next test interval.

Paragraph 3.3.1 - ComEd's program starts with a test interval of not more than three (3) refueling cycles for high and medium safety significant valves based on ComEd and Industry test data to date. The program allows for diagnostic test intervals up to ten (10) years for low safety significant valves. ComEd will participate in the Joint Owner's Group MOV testing program. ComEd will use the Joint Owners Group test results and the results from in-plant testing to determine the degradation rates for groups of valves. This information will be fed back into the ComEd program to justify or change the diagnostic test intervals via revision of White Paper 133, "MOV Periodic Testing, Maintenance, and Modification Scheduling Requirements."

> **ComEd notes that the method for determining diagnostic frequency allows testing periods exceeding five (5) years/three (3) refueling outages (approximately 1/3 of the required valves during each refueling cycle) for low safety significance / high margin MOVs. The results of the first two (2) outages per plant (12 outages of data, ~400 static tests and ~30 DP tests) will be evaluated and changes to the program test frequencies will be made, as required. A corporate report will be prepared which documents this evaluation and supports the final periodic verification test period. The report will examine stem factor variation, valve factor variation, and rate of loading variation to ensure design basis assumptions for these parameters are conservative. This report will be completed within a year of completion of the JOG effort and will be available for review at each of the ComEd stations.**

Paragraph 3.5 - ComEd will participate in the Joint Owner's Group MOV testing program. ComEd will use the Joint Owners Group test results and the results from in-plant testing to determine the degradation rates for groups of valves. ComEd will feed back the applicable factors from group valve testing to confirm or modify the assumed parameters which are not tested on individual valves.

Paragraph 3.6 - The exercising requirements of OMN-1 are currently being documented in each plant's Inservice Testing program. ComEd will not separately document valve exercising under the GL 96-05 program.

Paragraph 6.1/6.4.1.1 - Typically, stem force will be used to evaluate margin as allowed in paragraph 6.1.1. ComEd will include uncertainties in design parameters and measure data beyond those listed in 6.1(a, b & d).

Paragraph 6.3 - Individual test evaluation methods are established by station test and work control procedures. Individual parameters, rather than functional margin, from applicable test data are combined and fed back into margin reviews. The values of these parameters are controlled by ComEd's MOV Standards.

Paragraph 6.4.2.1 - Motor torque capability is based on a ComEd MOV Standard (White Paper) 125, "Installed Motor Capability Evaluation," which incorporates the result of testing on Limitorque motors and actuators.

Paragraph 6.4.2.2 - ComEd will evaluate margin based on stem thrust. The stem factor will be based on measured torque or tested spring pack. In those limited cases where an untested

spring pack is used, additional error is included to account for the increased uncertainty in spring force versus position.

Paragraph 6.4.3 & 6.4.4 - OMN-1 does not specifically address how uncertainties in test measurements and design parameters are handled. ComEd will calculate the margin available and based on the uncertainties in measured values and design parameters, ComEd will calculate the confidence that exists in the MOVs ability to perform its design function prior to the next test. This confidence and the valves risk assessment will be used to schedule the next test as allowed by paragraph 3.7.

Paragraph 9.1(d) - Piping configuration will only be documented when the configuration influences the valve operation. Description of the valve, stem and actuator may not be included in the test package, but is available in other plant documentation.

Paragraph 9.1(e) - This information will be tracked by ComEd's design control program rather than the GL 96-05 program.

Paragraph 9.1(I) - Full open (valve) flow, system fluid temperature and ambient temperature will be recorded whenever relevant and practical. When these variables cannot be documented due to insufficient instrumentation, the values will be estimated based on other available data and analytical methods.

ComEd will implement the periodic verification program as described in a series of ComEd MOV standards. The following summarizes guidance provided by the applicable MOV standards:

- **Margin calculation and operability screening. To address concerns raised during recent GL 89-10 closure inspections at Dresden and Quad Cities, ComEd's operability screening criteria will no longer be dependent on MOV safety significance.**

- **Performing operability evaluations for MOVS which do not meet the operability screening criteria.**

- **Determining the periodic verification test type and frequency as a function of MOV safety significance and margin.**

- **The timing of margin improvement activities for MOVs which do not meet the long term margin requirements.**

- **The methodology used to risk rank MOVs at the ComEd BWR and PWR stations. This prioritization was prepared in 1994. This methodology matches the BWROG process described in NEDC-32264, "Application of Probabilistic Safety Assessment to Generic Letter 89-10." A combination of PRA significance (based on risk achievement worth) and expert panel reviews were used to rank MOVs at the six (6) ComEd Stations. A reconciliation effort was then performed to ensure that MOV applications at the BWR stations (and at the PWR stations) were consistently treated. The breakdown of MOVs in safety significance categories at ComEd is approximately: 20% High Significance, 30% Medium Significance, 35% Low Significance, and 15% Low-Low Significance.**

The following are additional features of the ComEd periodic verification program:

- **A mix of as-found and as-left periodic verification testing will be performed. Testing in the as-left condition is allowed when dictated by maintenance scheduling.**

- **In general, newly installed MOVs and valves subjected to internal maintenance will be setup using grouping valve factors. If the measured valve factors are used rather than the group valve factor as the basis for setting up these MOVs, a repeat DP test will be scheduled within three (3) refueling outages of the baseline DP test, regardless of apparent margin.**

- **ComEd's verification testing program may include motor power diagnostic testing in lieu of stem thrust measurements. These alternate diagnostic methods will be used after their accuracy and limitations are documented.**

- **ComEd's commitment to support the Joint Owner's Group Periodic Verification Program includes periodic DP testing of selected valves and providing the test results to the JOG.**

- **ComEd commits to reviewing the JOG recommendations and, if necessary, the test results on which they were based. ComEd will incorporate the results of our review into the periodic verification program.**

To the best of my knowledge and belief, the information contained herein is true and accurate.

Please direct any questions concerning this response to this office.

Sincerely,

John Hosmer

John B. Hosmer
Vice President

Signed before me on this 15th day,

of March, 1997.

Michelle Kowal Kowalski
Notary Public

"OFFICIAL SEAL"
MICHELLE KOWALKOWSKI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 5/19/98

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