Commonwealth Edison Company
1400 Opus Place
Downers Grove, IL 60515-5701

RS-00-87

ComEd

August 30, 2000

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

LaSalle County Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Supplemental Response to Request for Additional Information Concerning Inservice Inspection Program Relief Requests Regarding Containment Inspections by Approved Alternate Means

References:

(1) Letter from R.M. Krich (Commonwealth Edison Company) to U.S. NRC, "Request for Inservice Inspection Program Relief Regarding Containment Inspections by Approved Alternate Means," dated May 8, 2000

(2) Letter from George F. Dick, Jr. (U.S. NRC) to Commonwealth Edison Company, "Request for Additional Information Regarding Requests for Relief To Use the 1998 Edition of Subsections IWE and IWL of the ASME Code," dated August 11, 2000

(3) Letter from R.M. Krich (Commonwealth Edison Company) to U.S. NRC, "Response to Request for Additional Information Concerning Inservice Inspection Program Relief Requests Regarding Containment Inspections by Approved Alternate Means," dated August 18, 2000

A047

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), Reference (1) was submitted as an alternative to the requirements of 10 CFR 50.55a(g), "Inservice inspection requirements," regarding the expedited examinations of containments for Byron Station, Units 1 and 2; Dresden Nuclear Power Station, Units 2 and 3; and LaSalle County Station, Units 1 and 2. On August 10, 2000, a teleconference was held with the NRC, its contractor and Commonwealth Edison (ComEd) Company personnel to discuss questions regarding the submittal. The NRC subsequently transmitted a Request for Additional Information (RAI) (i.e., Reference 2). We responded to this RAI in Reference 3. On August 26, 2000, a teleconference was held with NRC and Commonwealth Edison (ComEd) Company personnel to clarify a number of issues in our Reference 3 response and to provide some additional information.

Attachment 1 to this letter contains the information originally provided in Reference 3 and also includes the clarifying information discussed during the August 26, 2000 teleconference noted above.

Approval of our original submittal (i.e., Reference 1), as clarified in Attachment 1 of this response, will maintain the same level of assurance concerning the continued leak-tight and structural integrity of metallic and concrete containment components as would compliance with the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1992 Edition with the 1992 Addenda.

We request that the relief requests be approved by September 8, 2000, to support the Fall 2000 refueling outages for Byron Station, Dresden Nuclear Power Station and LaSalle County Station.

Should you have any questions concerning this letter, please contact Ms. Marcia Lesniak at (630) 663-6484.

Respectfully,

K. A. Ainger for

R.M. Krich
Vice President – Regulatory Services

Attachment 1: Response to Request for Additional and Clarifying Information, Relief Request to Use the 1998 Edition of the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, Subsections IWE and IWL

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Byron Station
NRC Senior Resident Inspector – Dresden Nuclear Power Station
NRC Senior Resident Inspector – LaSalle County Station

ATTACHMENT 1

Response to Request for Additional and Clarifying Information

Relief Request to Use the 1998 Edition of the
American Society of Mechanical Engineers, Boiler and Pressure Vessel Code,
Section XI, Subsections IWE and IWL

Question 1

"Request for Relief I2R-38, I2R-39, MCR-02, CR-33, CR-34, - The 1998 Code Edition, Articles IWE and IWL, defer to *owner-defined* General and Detailed visual examinations in lieu of accepted visual examination requirements, as currently described in IWA-2000. To establish that the licensee's alternative provides an acceptable level of quality and safety, details of Commonwealth Edison Company's General and Detailed Visual Examination Program, addressing both IWE and IWL components, must be evaluated. Please describe the following attributes of the visual examination program:

a) The owner-defined acceptance criteria that will be used with the General and Detailed visual examination for both IWE and IWL components.

b) The 1992 Edition/1992 Addenda, paragraph IWA-2310, requires that personnel performing NDE shall be qualified and certified using a written practice prepared in accordance with ANSI/ASNT CP-189. The 1998 Edition contains a new paragraph IWE-2330 relating to personnel qualification. This paragraph states that the owner is responsible for defining the qualification requirements for personnel performing visual examinations. The Staff has determined that the 1998 Code requirement requires licensee augmentation.

   The licensee states that personnel performing containment visual examinations will be qualified to a program developed using ANSI/ASNT CP-189 as *guidance*. Based upon the licensee's statement, it is unclear whether inspection personnel will be adequately qualified and certified. State whether the visual qualification and certification requirements specified in ANSI/ASNT CP-189 will be fully implemented for containment visual examination personnel. If not, provide information detailing the alternative qualification and certification processes that will be used.

c) The IWE-2500(b) requirement to examine paint or coatings prior to removal has been eliminated from the 1998 Edition. Relief from this requirement has been found acceptable when adequate provisions exist either in the licensee's Containment Inspection, Repair/Replacement, Nuclear Coatings, or Inservice Inspection Programs. However, the staff requires that exposed base metal be inspected to verify the structural integrity and leak worthiness prior to re-application of any coatings.

   It is understood the licensee will use a coatings pre-application inspection that will be performed by qualified/certified personnel, as applicable. The staff concludes that this is an adequate alternative to the requirements of

IWE-2500(b) provided that, as a minimum, 90% of the nominal base metal thickness is maintained prior to re-application of coatings. Confirm that greater than or equal to 90% of the original nominal base metal thickness will be verified prior to re-application of coatings."

Commonwealth Edison (ComEd) Company Response to Question 1

a) IWE Components - Accessible surfaces, pressure retaining bolting, and moisture barriers of Class MC components will be examined by general visual examination to assess the general condition of containment surfaces. Non-coated containment surfaces are examined for cracking, discoloration, structural distortion, wear, pitting, corrosion, gouges, surface discontinuities, dents, and other signs of surface irregularities. Coated containment surfaces are examined for flaking, blistering, peeling, discoloration or other signs of distress. Pressure retaining bolting is examined for defects, which cause the bolted connection to violate either leak-tightness or structural integrity acceptance criteria, such as deformed or sheared threads, reduction in cross sectional area, deformation, cracks, missing or loose parts, or degradation of protective coatings. Moisture barriers will be examined for tears, cracks or other damage that permits intrusion of moisture through the barrier. Recording criteria that is exceeded requires review by the "Responsible Individual" for disposition, as noted in IWE-2320.

   Containment surfaces requiring augmented examinations and suspect containment surfaces initially detected by general visual examinations will be examined by detailed visual examination to determine the magnitude and extent of any deterioration and distress. This includes examination of coated and non-coated containment surfaces, pressure retaining bolting, and moisture barriers for the same attributes addressed by general visual examination.

   IWL Components - Accessible surfaces of Class CC components will be examined by general and/or detailed visual examinations to assess the general condition of containment surfaces. Concrete containment surfaces are examined for leaching or chemical attack, abrasion, erosion, or cavitation degradation, popouts or voids, scaling, spalls, corrosion staining, cracks, settlements or deflections, exposed reinforcing steel, patches or repairs, or concrete coating deterioration. Additionally, the "Responsible Engineer" is required to make the final determination for acceptability of any indications, as noted in IWL-2320.

b) The containment visual examination certification program is developed from the guidelines of American National Standards Institute (ANSI)/American Society of Nondestructive Testing (ASNT) CP-189, "Standard for Qualification and Certification of Nondestructive Personnel." ANSI/ASNT CP-189 does not specifically include visual examinations; therefore, visual certification is based on written practice specific to containment visual examination.

   Personnel performing general and detailed visual examinations of Class MC and CC components will be certified to a written practice equivalent to the written practice for certification of Visual Testing (VT) personnel. The written practice for certification of VT personnel is written to comparable levels of ANSI/ASNT CP-189 in accordance with the 1992 Edition with 1992 Addenda of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code,

Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components."

c) Procedural requirements ensure that a detailed visual examination of the base metal, when exposed, is performed prior to coating reapplication, and as a minimum, 90% of the original nominal base metal thickness is maintained prior to reapplication of coatings.

Clarifying Information Requested during 08/26/00 Teleconference for Question 1a

"Provide confirmation the proposed IWL acceptance criteria follows ACI 201.1 or its equivalent."

ComEd Clarifying Information for Question 1a

American Concrete Institute (ACI) Standard, ACI 201.1R-92, "Guide For Making a Condition Survey of Concrete in Service," is a guide for making a condition survey of concrete structures. It contains the nomenclature used to describe degradation (i.e., cracking, spalling, scaling, pop-outs, etc.) found in concrete structures. The document also provides various pictorial depictions of these types of degradations. This document is useful for the engineer to provide a consistent basis for naming and describing the types of degradation found in concrete structures. ACI 201.1R does not provide acceptance criteria; however, evaluation criteria for nuclear, safety-related concrete structures are found in ACI 349.3R-96, "Evaluation of Existing Nuclear Safety-Related Concrete Structures." This document provides a three-tiered approach:

- Acceptable without further evaluation;
- Acceptance after review; and
- Conditions requiring further evaluation.

ACI-349.3R provides specific numerical values when measuring and evaluating the different types of concrete degradation.

ComEd's procedures for recording concrete degradation follow this tiered approach for the VT-3C (i.e., first tier) and the VT-1C (i.e., second tier), and use the values provided in the ACI 349.3R document. The ComEd VT-1C and VT-3C procedures provide "recording criteria," which if exceeded, require further review by the Responsible Engineer (i.e., third tier). This is consistent with IWL-3211 which requires the Responsible Engineer to determine the acceptability of an existing condition or to determine if further evaluation or repair is needed.

Additional Information Requested during 08/26/00 Teleconference for Question 1b

"State whether the general and detailed visual examination performed specified in the 1998 Code will meet the requirements of IWA-2210 for VT-3 and VT-1. If not, provide information detailing the alternative visual examination procedures."

ComEd Additional Information for Question 1b

The detailed visual examination performed for IWE and IWL, (i.e., equivalent to VT-1 and VT-1C respectively), will meet the requirements of IWA-2210, "Visual Examinations," of the 1998 Edition when performed directly. Remote detailed visual

examinations may be substituted for direct examination. When performing remote detailed visual examinations, the maximum direct examination distance specified in Table IWA-2210-1 may be extended and the minimum illumination requirements specified in Table IWA-2210-1 may be decreased provided that the conditions or indications for which the visual examination is performed can be detected at the chosen distance and illumination.

The general visual examination shall be performed either directly or remotely, with adequate illumination sufficient to detect evidence of degradation that may affect either the containment structural integrity or leak tightness. The general visual examination performed for IWE and IWL, using natural or artificial lighting, shall be sufficient to resolve a 1/32 in. black line on an 18% neutral gray card. In applications where remote visual examination systems are to be used, those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination.

Question 2

"Requests for Relief I2R-38, MCR-02, and CR-33 - Examination Category E-G, Pressure Retaining Bolting, has been removed from Table IWE-2500-1 in the 1998 Edition. The 1992 Edition requires a visual examination (VT-1) of bolting when a connection is disassembled. The 1998 Edition requires a General visual, performed in place, with no requirement for visual examination when the joint is disassembled.

a) **In order to provide an acceptable level of quality and safety the staff has determined that the 1998 Edition requirements for visual examination of bolted connections must be supplemented. In this regard, the staff has established the following technical consensus.**

   All accessible bolted connections shall be visually examined each inspection period per the requirements of the 1998 Edition of ASME Section XI, Table IWE-2500-1, Category E-A. This corresponds to an examination of all bolted connections three times per inspection interval. The licensee shall perform a general visual examination (VT-3 or equivalent) on the exposed portions of the connection. Bolted connections need not be disassembled solely for the performance of VT-3 examinations. However, if the general visual examination indicates possible areas of degradation or damage, a detailed visual examination (VT-1 or equivalent) shall be performed.

   If a bolted connection is disassembled at the time of periodic inspection, all accessible surface areas of the connection shall be visually examined [general (VT-3), or detailed (VT-1), if necessary]. If a connection is disassembled at times other than periodic (or planned) inspection and is not examined by a qualified visual examiner before reassembly, written maintenance procedures shall be followed to ensure that the integrity of reassembled bolted connections are maintained. The written procedures shall include acceptance criteria for the continued use of all parts of the connection including bolts, studs, nuts, bushings, washers, threads in base material and flange ligaments between fastener holes.

Please confirm that the supplemental conditions listed above will be met.

b) **The 1992 Edition/Addenda requires the measurement of bolt torque or tension for bolted connections that have not been disassembled during the interval. This requirement has been eliminated in the 1998 Edition. The staff has concluded that Appendix J testing may be used to verify the leak-tight integrity of bolted connections, seals and gaskets at containment penetrations, provided these tests (Appendix J, Types B or C) are applied appropriately. Provide a brief summary of the Appendix J program at each facility, including which Option is being used, and the rationale for when these tests would be applied in lieu of bolt torque or tension testing to include disassembly or repair/replacement of bolting at times other than periodic (or planned) inspection."**

ComEd Response to Question 2

a) We have reviewed and concur with the supplemental conditions provided.

b) The 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," program is currently utilizing Option B, "Performance-Based Requirements," of Appendix J. Bolted connections are tested in an as-found and as-left basis when disassembled, or bolting is repaired or replaced. If the bolted connections are not disassembled, then the connections are periodically tested in accordance with the Appendix J program. The periodicity is evaluated against leakage acceptance criteria specified in the Appendix J leak rate program procedures whenever the bolted connections are tested. If any leakage is outside of these criteria, the periodicity is evaluated. When leak rates of bolted connections are in the warning limit region, repairs are evaluated. When leak rates of bolted connections are in the alarm limit region, then repairs will be made, and an as left test performed.

Clarifying Information Requested during 08/26/00 Teleconference for Question 2a

"The licensee's response to question 2a does not provide a clear commitment to the NRC technical position on the subject examinations. Provide confirmation that the supplemental conditions listed in the subject technical position will be met. In addition confirm that the general visual examination is equivalent to a VT-3, and the detailed visual examination is equivalent to a VT-1."

ComEd Clarifying Information for Question 2a

We have reviewed and commit to the supplemental conditions noted in NRC Question 2a. Specifically, all accessible bolted connections shall be visually examined each inspection period per the requirements of the 1998 Edition of ASME Section XI, Table IWE-2500-1, Category E-A. This corresponds to an examination of all bolted connections three times per inspection interval. We shall perform a general visual examination (VT-3 or equivalent) on the exposed portions of the connection. Bolted connections need not be disassembled solely for the performance of general visual examinations (VT-3 or equivalent). However, if the general visual examination indicates possible areas of degradation or damage, a detailed visual examination (VT-1 or equivalent) shall be performed.

If a bolted connection is disassembled at the time of periodic inspection, all accessible surface areas of the connection shall be visually examined [i.e., general visual examination (VT-3 or equivalent), or detailed visual examination (VT-1 or equivalent), if necessary]. If a connection is disassembled at times other than periodic or planned inspection, and is not examined by a qualified visual examiner before reassembly, written maintenance procedures shall be followed to ensure that the integrity of reassembled bolted connections are maintained. The written procedures shall include acceptance criteria for the continued use of all parts of the connection including bolts, studs, nuts, bushings, washers, threads in base material and flange ligaments between fastener holes.

The general visual and detailed visual examination of bolting is equivalent to VT-3 and VT-1 examinations respectively.

Question 3

"Request for Relief I2R-39, CR-34, - IWL-2410, allows for deferral of concrete visual exams to the next scheduled plant outage for portions of the concrete surface that cannot be examined within the stated time interval. This may be considered acceptable provided credit for the examination is not taken for two intervals simultaneously. Please confirm that this condition will be met."

ComEd Response to Question 3

Examinations originally scheduled for an interval but deferred to the next interval pursuant to IWL-2410, "Concrete," will only be credited to the original interval. To credit the next interval, the examination will be performed again within that interval.

Additional Information Requested during 08/26/00 Teleconference

"In Paragraph IWE-3511.3 of the 1998 Code, examination of Class CC metallic liners has been excluded from the acceptance criteria, which requires disposition of areas where material loss exceeds 10% of the nominal wall thickness. Therefore, the 1998 Code is not acceptable for Class CC metallic liners without augmentation by the licensee.

In order for IWE-3511.3 of the 1998 Code to be found acceptable, the ultrasonic examination requirements specified must be applied to Class CC components as well as Class MC components. This is equivalent to the requirements of the 1992 Addenda.

Provide confirmation that the ultrasonic examination requirements specified in IWE-3511.3 will be applied to Class CC components as well as Class MC components."

ComEd Response to Additional Information Requested during 08/26/00 Teleconference

The ultrasonic examination requirements of IWE-3511.3 of the 1998 Code will be applied to Class CC metallic liners as well as Class MC components.