



December 20, 1996

U. S. Nuclear Regulatory Commission  
Attn. Document Control Desk  
Washington, D. C. 20555

**SUBJECT:** Supplemental Response to An Apparent Violation in Inspection Report  
Nos. 50-237/96012(DRS); 50-249/96012(DRS); 50-254/96016(DRS); 50-  
265/96016(DRS) **Protection of Motor Operated Valves During**  
**Postulated Hot Shorts** NRC Docket Nos. 50-237/249 and 50-254/265

**REFERENCE:**

1. NRC Inspection Report Nos. 50-237/96012(DRS); 50-249/96012(DRS); 50-254/96016(DRS); 50-265/96016(DRS), dated November 14, 1996.
2. E. S. Kraft letter (ESK-96-224) to USNRC, Response to an Apparent Violation, dated December 12, 1996.

The Reference (1) Inspection Report discusses the results of the NRC staff's special inspection regarding fire protection issues at Dresden and Quad Cities. In the Inspection Report, the NRC staff identified one apparent violation that is being considered for escalated enforcement action for Dresden and Quad Cities. The apparent violation identifies a concern with the protection of motor operated valves during a postulated control room fire leading to a "hot short". Under certain limited conditions, a fire induced hot short in the control circuit of a motor operated valve can lead to spurious valve operation and mechanical damage to the valve operator.

Also in this Inspection Report, the NRC staff requested that ComEd include a discussion of assurances that other nonconforming conditions do not exist at any of our other nuclear power plants, and that site and/or corporate engineers are providing conservative recommendations to station management when addressing nonconforming conditions.

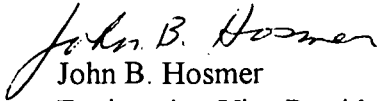
Reference 2 provided the response to the apparent violation for Dresden and Quad Cities stations. The discussion with respect to other ComEd plants, including long term corrective actions and interim compensatory measures, may be found in Attachment A.

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ComEd appreciates the opportunity to respond to these concerns. If there are any further questions regarding this issue, please contact Roger Gavankar at Downers Grove.

Sincerely,

  
John B. Hosmer  
Engineering Vice President  
Downers Grove

Attachment: A - Discussion with Respect to Other ComEd Plants

cc: A. B. Beach, Regional Administrator - RIII  
C. L. Vanderniet, Senior Resident Inspector - Dresden  
C. G. Miller, Senior Resident Inspector - Quad Cities  
R. A. Capra, Project Directorate - NRR  
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## ATTACHMENT A

### **Response to the Request for Additional Information Inspection Report Numbers 50-237/96012(DRS); 50-249/96012(DRS); 50-254/96016(DRS); 50-265/96016(DRS)**

#### **Discussion of Other ComEd Plants**

#### **BACKGROUND**

In 1992, IEN 92-18 was issued to inform licensees of the potential for mechanical valve damage resulting from fire induced hot shorts. The IEN correctly stated that the information contained in the notice was not an original license requirement. Consistent with the industry positions at that time, ComEd sites concluded that no specific actions were required due to one or more of the following reasons:

- a. Initial concurrence with the August 13, 1992, Nuclear Management and Resources Council (NUMARC) recommendation regarding careful consideration by utility management of any plans for plant design changes with respect to IEN 92-18.
- b. The premise that thermal overload protection would preclude mechanical damage.
- c. Low probability of a control room fire and valve damage from fire induced hot shorts.

In June 1996, due to increased corporate engineering oversight, ComEd recognized that its past actions with respect to this issue did not address the "consequences" of spurious valve actuation and potential valve damage caused by a postulated "hot short". Specifically, ComEd revisited the concerns outlined in IEN 92-18 and recognized that, contrary to the suggestion in IEN 92-18, thermal overload protection would not preclude mechanical damage for all motor operated valve control circuits, and that dismissing the concern to low probability at some sites did not assure safe shutdown. Assuming the postulated event occurs (e.g, a design basis control room fire with a hot short that leads to mechanical valve damage), safe shutdown could be compromised. As a result, all six (6) sites were directed to re-evaluate their original IEN 92-18 response.

In July 1996, after each site reviewed their original IEN 92-18 responses, ComEd engineering classified the concern as a technical issue requiring resolution. Corporate fire protection worked with site engineers to develop a generic action plan for resolving the issue. Site specific action plans were then developed and are being implemented. As a result, the issue of a fire induced hot short resulting in spurious actuation with valve damage was aggressively pursued, and conservative interim compensatory actions are implemented for units at power operation if it is determined that mechanical damage could complicate or prevent safe shutdown.

Interim compensatory measures include increasing awareness of control room personnel by informing them of the potential condition and necessary mitigating actions (e.g., establishing alternate flow paths or isolations), and prohibiting conditions that increase the probability of a control room fire (e.g., hot work, transient combustibles that are not integral to plant operation). These actions further minimize the probability of a fire in the control room, and provide reasonable assurance that safe shutdown will be achieved, until long term corrective actions are complete (e.g., procedure enhancements, modifications, training).

## **DESIGN BASIS**

ComEd concurs that "hot shorts" with possible mechanical damage to the valve is a valid technical issue, and we have taken action at each site to minimize its impact. However, ComEd does not believe this issue was part of our original design basis analyses. In our safe shutdown analyses (SSA), the consequences of a valve spuriously actuating due to fire was limited to the functional failure state of a valve mispositioning to an undesired position (e.g., valve fails open or closed). Postulating hot shorts that cause mechanical damage and preclude manual operation of a valve was not a failure state considered in the original design basis analyses. These analyses, and the approach to consideration of spurious valve operation, were consistent with the industry and subsequent guidance provided in Generic Letter 86-10, "Implementation of Fire Protection Requirements." The approval of these analyses confirm that our initial approach with respect to spurious valve actuation satisfied Appendix R requirements.

## **PLANT STATUS**

- **Dresden / Quad:**

Re-review of IEN 92-18 is complete. Corrective actions completed to adequately mitigate the concern outlined in IEN 92-18 were provided in Reference 1.

- **LaSalle:**

Re-review of IEN 92-18 is complete. Long term corrective actions to adequately mitigate the concern outlined in IEN 92-18 (e.g., circuit modifications) are scheduled to be completed prior to restart of Unit 1 and Unit 2, respectively.

- **Zion:**

Re-review of IEN 92-18 is complete. MOV's were screened out in cases where mechanical damage is precluded by administratively isolating the MOV circuit during power operation (e.g., 480 vac power is turned off). The circuits for the remaining MOV's were reviewed. To date, no circuit modifications are required because the MOV circuits are not susceptible to the hot short concern. Formal documentation of the re-review is expected to be completed by January 31, 1997.

- **Byron / Braidwood:**

Re-review of IEN 92-18 is complete. The concern outlined in IEN 92-18 will not prevent safe shutdown. However, in order to ensure the safe and conservative operation of the plants, and to enhance the capability to respond to the postulated events, procedure revisions are being evaluated and implemented. Procedure changes are desirable to enhance the ability of the operators to diagnose and respond to the event postulated in IEN 92-18 in the event of a control room fire, but are not essential to achieve safe shutdown of the units. Procedure changes will be implemented in a timely manner. During the interim, until the procedure revisions are complete, compensatory measures include heightening operator awareness of mitigating actions via tailgate sessions, and prohibiting conditions that increase the probability of a fire in the control room (e.g., hot work, transient combustibles).

In addition, even though the postulated event is considered to be outside the design and licensing basis of the Byron/Braidwood stations, modifications are being evaluated. Modifications, if implemented, would be for the purpose of enhancing continued safe and conservative operation of the units.

## **CONCLUSION**

ComEd acknowledges that the concern involves a valid technical issue, and has conservatively acted to resolve the issue. While consideration of mechanical damage as a result of hot shorts was outside the original design and licensing basis of the plant, ComEd is addressing the merits of the technical issue at each site.

Several licensees, including ComEd, historically took the position that for Appendix R compliance, the consequences of a valve spuriously operating due to fire was limited to the valve mispositioning to an undesired position (e.g., valve fails opened or closed). This does not impact our decision in recent months to address and resolve the technical issue. However, ComEd believes that the matter should be addressed consistently as a resolution of a generic industry issue.