



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

June 8, 1990

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

Subject: Dresden Station Units 2 and 3
Quad Cities Station Units 1 and 2
LaSalle County Station Units 1 and 2
Supplemental Response to
Generic Letter 89-19
NRC Docket Nos. 50-237/249,
50-254/265 and 50-373/374

- References:
- (a) Generic Letter 89-19,
dated September 20, 1989.
 - (b) M. Richter (CECo) letter to U.S. NRC,
dated March 23, 1990.
 - (c) S. Floyd (BWR Owners' Group) letter
to U.S. NRC, dated April 2, 1990.

Dear Sir:

As a result of the technical resolution of USI A-47, "Safety Implications of Control Systems in LWR Nuclear Power Plants," the NRC staff has concluded that all Boiling Water Reactor (BWR) plants should provide automatic reactor vessel overfill protection. In addition, it was concluded that plant procedures and technical specifications should include provisions to periodically verify the operability of the overfill protection and to assure that automatic overfill protection is available to mitigate main feedwater overfeed events during reactor power operation. Generic Letter 89-19 (Generic Letter) recommended acceptable overfill protection designs, and procedural and technical specification provisions, which licensees were requested to implement to enhance safety. Additionally, the Generic Letter required that licensees provide a response which would confirm that the Generic Letter recommendations would be implemented, and a schedule for implementation.

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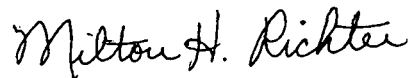
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Reference (b) provided Commonwealth Edison Company's (CECo) initial response to the Generic Letter for Dresden, Quad Cities and LaSalle County Stations. The initial response identified the procedural and technical specification enhancements which were determined to be necessary. Additionally, the response indicated that CECo was participating with the BWR Owners' Group (BWROG) in the preparation of a generic response which addresses the separation recommendations, between the reactor vessel overfill protection system and the main feedwater level control system, presented in the Generic Letter. CECo committed to provide a response on the separation recommendations presented in the Generic Letter for its BWR Stations following the submittal of the BWROG response (Reference (c)). The Attachments (A through C) to this letter provide that response for Dresden, Quad Cities, and LaSalle County Stations. This response, coupled with Reference (b), completes CECo's response for its BWR Stations to the Generic Letter.

Please direct any questions that you may have concerning this response to this office.

Respectfully,



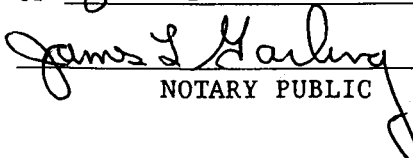
M.H. Richter
Generic Issues Administrator

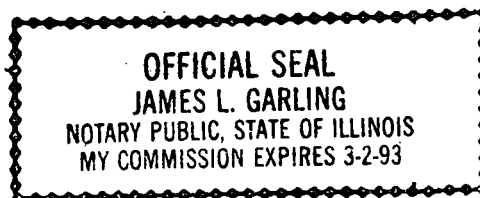
Attachments: A - Dresden Station Response to Generic Letter 89-19
B - Quad Cities Station Response to Generic Letter 89-19
C - LaSalle County Station Response to Generic Letter 89-19

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cc: A.B. Davis - Regional Administrator, Region III
Senior Resident Inspector - D/QC/LSC
P. Eng - NRR Project Manager
R. Pulsifer - NRR Project Manager
L. Olshan - NRR Project Manager

SUBSCRIBED AND SWORN TO
BEFORE ME THIS 8 DAY
OF June, 1990.


NOTARY PUBLIC



RECOMMENDATION

The overflow protection system is separate from the control portion of the main feedwater (MFW) control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems. The design for the overflow protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a reactor high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common-mode failures that could disable overflow protection and the feedwater control system, but would still result in a feedwater pump trip, are considered acceptable failure modes.

RESPONSE

Commonwealth Edison Company (CECo) has participated with the BWR Owners' Group (BWROG) in the preparation of a generic response (S. Floyd letter to U.S. NRC, dated April 2, 1990) which addresses the overflow protection/MFW level control separation recommendations of the Generic Letter. The BWROG response presents the results of a BWROG study of currently utilized automatic overflow protection systems related to the separation recommendations of the Generic Letter and to the NRC assessments reported in NUREG-1217 and NUREG-1218. The BWROG response applies to Dresden Station.

Dresden Station is a General Electric BWR-3 plant which currently provides automatic reactor pressure vessel (RPV) overflow protection. The non-safety related overflow protection circuitry employs a "2-out-of-2" initiating logic to automatically trip the reactor feedwater pumps when RPV level reaches 55 inches above instrument zero. The overflow protection configuration at Dresden Station is consistent with the "Group II" design identified in the Generic Letter, and the "Group D Plant" design identified in the BWROG response.

Although the RPV overflow protection system and MFW control system are powered from separate power sources, the Dresden Station configuration does not conform to the physical separation recommendations in the following areas.

1. The overflow protection system and the MFW control system have control switches, relays, and control modules located in the same cabinet.
2. The field cables for the overflow protection system and the MFW control system have common routing points.
3. The overflow protection system level sensors also provide input to the MFW control system. This input interfaces with the MFW control system runout flow control mode logic. The failure of a level sensor has the potential to disable the overflow protection system and the automatic reset of the runout flow control mode of the MFW control system. The impact on the MFW control system occurs during a high feedwater flow (run-out) condition. However, in the event of this condition, the operator still has the capability to manually reset the runout flow control mode and take actions to control level.

It has been estimated that the cost to implement the separation recommendations would be in excess of \$300,000 for Dresden Station.

As indicated previously, the automatic overflow protection design for Dresden Station was included in the BWROG study. For the overflow system designs considered in the study, it was concluded that adequate RPV overflow protection was provided, and that the safety benefit gained by providing additional protection system redundancy and independence from the MFW control system was not significant (or cost effective). CECo concurs with the conclusions of the BWROG study.

Although the separation recommendations are not fully met, CECo believes an adequate and reliable automatic overflow protection system currently exists for Dresden Station, which meets the intent of the Generic Letter. Additionally, the enhancements being made to the station's procedures and technical specifications (reference March 23, 1990 response for Dresden Station) will provide further assurance of overflow protection system availability during power operation. Therefore, CECo is not planning to initiate any modifications which would provide additional separation between the overflow protection system and the MFW control system.

QUAD CITIES STATION RESPONSE TO GENERIC LETTER 89-19

RECOMMENDATION

The overflow protection system is separate from the control portion of the main feedwater (MFW) control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems. The design for the overflow protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a reactor high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common-mode failures that could disable overflow protection and the feedwater control system, but would still result in a feedwater pump trip, are considered acceptable failure modes.

RESPONSE

Commonwealth Edison Company (CECo) has participated with the BWR Owners' Group (BWROG) in the preparation of a generic response (S. Floyd letter to U.S. NRC, dated April 2, 1990) which addresses the overflow protection/MFW level control separation recommendations of the Generic Letter. The BWROG response presents the results of a BWROG study of currently utilized automatic overflow protection systems related to the separation recommendations of the Generic Letter and to the NRC assessments reported in NUREG-1217 and NUREG-1218. The BWROG response applies to Quad Cities Station.

Quad Cities Station is a General Electric BWR-3 plant which currently provides automatic reactor pressure vessel (RPV) overflow protection. The non-safety related overflow protection circuitry employs a "2-out-of-2" initiating logic to automatically trip the reactor feedwater pumps when RPV level reaches 48 inches above instrument zero. The overflow protection configuration at Quad Cities Station is consistent with the "Group II" design identified in the Generic Letter, and the "Group D Plant" design identified in the BWROG response.

Although the RPV overflow protection system and MFW control system are powered from separate power sources, the Quad Cities Station configuration does not conform to the physical separation recommendations in the following areas.

1. The field cables for the overflow protection system and the MFW control system have common routing points.
2. The overflow protection system level sensors also provide input to the MFW control system. This input interfaces with the MFW control system runout flow control mode logic. The failure of a level sensor has the potential to disable the overflow protection system and the automatic reset of the runout flow control mode of the MFW control system. The impact on the MFW control system occurs during a high feedwater flow (run-out) condition. However, in the event of this condition, the operator still has the capability to manually reset the runout flow control mode and take actions to control level.

It has been estimated that the cost to implement the separation recommendations would be in excess of \$200,000 for Quad Cities Station.

As indicated previously, the automatic overflow protection design for Quad Cities Station was included in the BWROG study. For the overflow system designs considered in the study, it was concluded that adequate RPV overflow protection was provided, and that the safety benefit gained by providing additional protection system redundancy and independence from the MFW control system was not significant (or cost effective). CECO concurs with the conclusions of the BWROG study.

Although the separation recommendations are not fully met, CECO believes an adequate and reliable automatic overflow protection system currently exists for Quad Cities Station, which meets the intent of the Generic Letter. Additionally, the enhancements being made to the station's procedures and technical specifications (reference March 23, 1990 response for Quad Cities Station) will provide further assurance of overflow protection system availability during power operation. Therefore, CECO is not planning to initiate any modifications which would provide additional separation between the overflow protection system and the MFW control system.

RECOMMENDATION

The overflow protection system is separate from the control portion of the main feedwater (MFW) control system so that it is not powered from the same power source, not located in the same cabinet, and not routed so that a fire is likely to affect both systems. The design for the overflow protection system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a reactor high-water-level signal when required, even if a loss of power, a loss of ventilation, or a fire in the control portion of the MFW control system should occur. Common-mode failures that could disable overflow protection and the feedwater control system, but would still result in a feedwater pump trip, are considered acceptable failure modes.

RESPONSE

Commonwealth Edison Company (CECo) has participated with the BWR Owners' Group (BWROG) in the preparation of a generic response (S. Floyd letter to U.S. NRC, dated April 2, 1990) which addresses the overflow protection/MFW level control separation recommendations of the Generic Letter. The BWROG response presents the results of a BWROG study of currently utilized automatic overflow protection systems related to the separation recommendations of the Generic Letter and to the NRC assessments reported in NUREG-1217 and NUREG-1218. The BWROG response applies to LaSalle Station.

LaSalle Station is a General Electric BWR-5 plant which currently provides automatic reactor pressure vessel (RPV) overflow protection. The non-safety related overflow protection circuitry employs a "2-out-of-3" initiating logic to automatically trip the reactor feedwater pumps when RPV level reaches 55.5 inches above instrument zero. The overflow protection configuration at LaSalle Station is consistent with the "Group I" design identified in the Generic Letter, and the "Group B Plant" design identified in the BWROG response.

The LaSalle Station overflow protection/MFW level control configuration does not conform to the physical separation recommendations in the following areas.

1. The overflow protection system and the MFW control system have control switches, relays, and control modules located in the same cabinet.
2. The field cables for the overflow protection system and the MFW control system have common routing points.
3. The MFW control system and one channel of the overflow protection system utilize the same power source. However, since each of the three overflow protection channels are independent and powered from separate power sources, the failure of a single overflow channel component or the loss of a single power source will not disable the overflow protection system.
4. Two of the three overflow protection system level sensors also provide input to the MFW control system. The failure of a single level sensor would not disable the overflow protection system.

It has been estimated that the cost to implement the separation recommendations would be in excess of \$400,000 for LaSalle Station.

As indicated previously, the automatic overfill protection design for LaSalle Station was included in the BWROG study. For the overfill system designs considered in the study, it was concluded that adequate RPV overfill protection was provided, and that the safety benefit gained by providing additional protection system redundancy and independence from the MFW control system was not significant (or cost effective). CECo concurs with the conclusions of the BWROG study.

Although the separation recommendations are not fully met, CECo believes an adequate and reliable automatic overfill protection system currently exists for LaSalle Station, which meets the intent of the Generic Letter. Additionally, the Technical Specification recommendations in the Generic Letter currently exist (as detailed in the March 23, 1990 response for LaSalle County Station). Therefore, CECo is not planning to initiate any modifications which would provide additional separation between the overfill protection system and the MFW control system.