



Commonwealth Edison
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November 17, 1988

Dr. Thomas E. Murley, Director
Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC. 20555

Mr. A. Bert Davis
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
Glen Ellyn, IL. 60137

Gentlemen:

Your letter of October 4, 1988, identified two concerns regarding the loss of one train of residual heat removal (RHR) that occurred at Byron Station on September 19, 1988. The first concern dealt with the industry experience on this type of event and why the appropriate lessons learned were apparently not incorporated into the Byron procedures to prevent this occurrence. The second concern raised the broader question regarding the general effectiveness of incorporating lessons learned into our plants' operating procedures.

Commonwealth Edison has conducted an extensive investigation and a self-assessment review to determine how the event occurred. As a result of the NRC generic correspondence and the INPO SEE-IN program, Commonwealth Edison has been and will continue to be sensitized to the industry wide PWR problem with regard to the loss of decay heat removal. After the Byron event, both corporate and station management questioned the effectiveness of the extensive evaluation and implementation of corrective actions in response to the numerous operating experience documents, specifically the NRC Generic Letter 87-12. Since the Generic Letter comprehensively encompassed the collective PWR loss of decay heat removal experience, the Byron Station staff conducted an effectiveness review of the letter to determine if the review and corrective action implementation may have been flawed.

The effectiveness review determined that the lessons learned from the Generic letter were not directly applicable to the causes of the Byron event. The collective operating experiences used to formulate the Generic Letter occurred while draining to or operating with water level at the mid-plane of the Reactor Vessel nozzles. Consequently, all of Byron Station's corrective and preventative actions were targeted at evolutions that involved water level control between mid-plane and the Reactor Vessel flange.

The Byron event occurred when the unit was in Mode 6 while executing the appropriate procedure to drain the reactor cavity water level to the vessel flange. The inadvertent draining to mid-plane occurred while the licensed operators believed the water level to be at

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the flange. This was caused by what is now known to be a hydraulic coupling phenomenon due to the restricted flow through the upper internals assembly. This phenomenon had not been well known in the industry and there was no industry knowledge of hydraulic coupling limitations with fuel in place. In addition, the effects of hydraulic coupling were not addressed in the generic correspondence. Based on industry and Byron's previous experience, there was no reason to suspect that direct visual observation of the cavity water level would not be indicative of the Reactor Vessel level. Once this phenomenon was recognized, Commonwealth Edison expeditiously shared the information with the industry via INPO's Nuclear Network.

During the investigation, it was concluded that the operator actions were correctly and promptly performed which completely mitigated the potential safety significance of the event. These immediate actions demonstrated that the training the operators received, as a result of the previous industry experiences, adequately conveyed the information contained in the generic correspondence.

Commonwealth Edison as a whole and Byron Station specifically is committed to a sound lessons learned (OPEX) program. Byron's overall operational record attests to the general effectiveness of incorporating internal and external lessons learned. In early 1988, Byron Station embarked on an OPEX enhancement program because room for improvement and the potential for high dividends in terms of operational safety and reliability were recognized. As part of the OPEX enhancement program, Byron Station has:

- developed a more detailed and systematic approach to evaluate OPEXs
- expanded the scope of OPEX review
- developed a formal effectiveness review of past operating experiences.

These enhancements were strictly self initiated and intended to result in a model OPEX program for the industry.

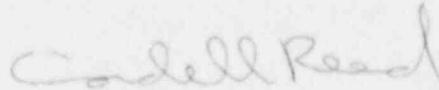
Corporately, Commonwealth Edison has a dedicated OPEX department that is staffed with four senior engineers, each currently holding or have previously held an SRO license. The combined 80 years of experience is utilized to review internal and external industry events and to help the stations develop action plans and incorporate the lessons learned from these events into their programs. The OPEX department then tracks the progress of the action plan and assesses the corrective actions through a continual review of plant events, a quarterly monitoring program, and an annual effectiveness review.

Based on the investigation, it was determined that there were no previous industry experiences with a fueled reactor that would have brought the hydraulic coupling effect to the attention of Byron's management. It was further determined that the operators reasonably relied on direct visual observation as the most direct method to monitor cavity level, with the information that was previously available.

In conclusion, Commonwealth Edison believes that the Byron Station OPEX program and the Corporate OPEX program adequately incorporate the industry lessons learned into the Stations' operating procedures.

Thank you for allowing us this opportunity to respond to your concerns.

Very truly yours,

A handwritten signature in cursive script that reads "Cordell Reed".

Cordell Reed
Senior Vice President

/klj

cc: Z. Pate (INPO)
T. Sullivan (INPO)

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