Commonwealth Edison Company
Zion Generating Station
101 Shiloh Boulevard
Zion, IL 60099-2797
Tel 847-746-2084

ComEd

ZRA97032
August 6, 1997

Mr. Bill Beach,
Regional Administrator, USNRC - Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Subject: Zion Nuclear Power Station Units 1 and 2
Clarification of Uncertainties of RHR Operation During Zion Station Nitrogen Gas Accumulation Event of March 7, 1997
NRC Docket Numbers 50-295 and 50-304

Reference: Enforcement Conference held between USNRC and ComEd, dated July 3, 1997, NRC Enforcement Action 97-222

Dear Bill,

As a result of the March 7, 1997, nitrogen gas accumulation event, a Pre-decisional Enforcement Conference was held (in part) to address the safety significance of the event (Reference). During this conference, ComEd stated that the loss of the Residual Heat Removal System (RHR) was unlikely if one assumes that the Operators would not have taken action to terminate the event.

Modeling of the Zion piping configuration suggests that at actual reactor coolant system (RCS) elevations as low as 584 feet 2 inches, RHR could continue to operate acceptably at flow rates of up to 3000 gallons per minute (gpm) without air binding. However, experience during mid loop operations shows that air binding can occur at reduced RCS levels. These events occurred at levels less than 6 inches above the loop center line (584 feet 6 inches). The actual water level at which the air binding occurred is unknown.

The additional head (approximately 38 feet) provided by the pressurizer would mitigate the tendency for air binding the RHR pumps during gas accumulation. This head provides a driving force to push water back into the pump suction eye if air expansion occurs at the low pressure area of the impeller thus reducing air binding potential. This effect, in conjunction with the modeling performed for Zion, formed the basis for our judgment that RHR would not have been affected if the operators had not acted to terminate the gas accumulation.

1/2
IE45

120086

However, the uncertainties associated with the actual level at which RHR was affected during past mid loop operations means that the effects on RHR operation cannot be conclusively determined without conducting an actual test using one of Zion's reactors and associated equipment. There are no plans to conduct such a test. The benefits of a test would be only to gain additional information about an operating scenario for which we have no intention of repeating. Though this test could be performed on Unit 1 (which is currently defueled), the potential diversion or Zion resources would be significant at a time when ComEd is dedicating those resources to improving overall station performance.

Should you have any questions concerning this clarification letter, please contact Tom Luke of my staff at 847-746-2084 extension 2243.

Sincerely,

J. H. Mueller
Site Vice President
Zion Nuclear Station

cc: Regional Administrator, USNRC - Region III
Senior Project Manager, USNRC - NRR Project Directorate III-2
Senior Resident Inspector, Zion Nuclear Station
Office of Nuclear Facility Safety – IDNS
Document Control Desk

k:\comply\cg.nrc\rhrloss.doc