Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

October 7, 1994

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

Subject: Dresden Nuclear Power Station Unit 2
Quad Cities Nuclear Power Station Unit 2
Commonwealth Edison (ComEd) Response to Request for Additional Information (RAI) Regarding NRC Generic Letter (GL) 94-03, "Intergranular Stress Corrosion Cracking of Core Shrouds in Boiling Water Reactors."
NRC Docket Nos. 50-249 and 50-265

References: (a) J. Stang letter to D. Farrar, dated September 27, 1994.

The purpose of this letter is to provide ComEd's response to the Reference (a) RAI regarding NRC Generic Letter (GL) 94-03, "Intergranular Stress Corrosion Cracking of Core Shrouds in Boiling Water Reactors." The details of the response to the RAI are contained in the attachments to this letter.

Potential core shroud cracking associated with the H2 and H3 welds at Dresden Unit 2 and Quad Cities Unit 2, was evaluated for both design basis and beyond design basis accident conditions and it has been determined that the potential cracking does not prevent the safe operation of either unit for the remainder of the present cycle 14. Provided below is a summary of the key areas reviewed and the conclusions reached.

- For Dresden and Quad Cities, the combination of high ductility, high toughness and low stresses makes the shroud extremely flaw tolerant. Even for the assumed case of 360 degree circumferential cracking, crack depths greater than 90% of the available material can be tolerated while maintaining the structural integrity for normal operation , postulated design basis accident conditions and postulated accidents beyond the design basis, including ASME Code safety factors.

130035

k:\nla\dresden\shroud\rai9403.wpf\1

A018

- A maximum bounding crack depth of 0.64 inches (based on operation up to the present) was calculated for Dresden Unit 2 using an analytical modeling approach, and is within the computed allowable crack depth. The plant water chemistry history at Dresden Unit 2 is significantly better than Dresden Unit 3 and the affects of hydrogen water chemistry (since 1983) have been included in the calculation of the plant specific crack growth rates. The crack growth rates associated with the H2 and H3 weld areas for Quad Cities Unit 2 are similar to those for Quad Cities Unit 1. This is based on similar water chemistry histories and average conductivities for the two units at Quad Cities Station. Because Quad Cities Unit 2 has two less years of hot operation, the cracking at Quad Cities Unit 2 is expected to be bounded by the cracking identified in Quad Cities Unit 1.

- The realistic crack growth rate associated with the H2 and H3 weld area is slightly higher than that at the H5 weld, but is still bounded by the prediction made by the PLEDGE model for the Dresden 2 plant specific hydrogen water chemistry.

- For Dresden Unit 2, if the shroud assembly is postulated to have 360 degree through-wall cracking at H2 or H3, the shroud assembly would lift a maximum of 3.8 inches at H2 (5.0 inches for Quad Cities Unit 2) and 1.6 inches at H3 (2.6 inches at Quad Cities Unit 2) during normal operating conditions. In this event, the operator would be able to detect the crack, and safely shut down the plant. For both Dresden Unit 2 and Quad Cities Unit 2, if a 360 degree crack is postulated with a Main Steam Line Break (MSLB), the maximum lift is 14.6 inches at H2 and 10.1 inches at H3. The MSLB induced lift associated with a crack at H2 results in no lateral movement of the top guide and thus lateral support of the core is not affected. The MSLB induced lift associated with a crack at H3 results in a lift of the shroud and top guide, that is less than the 14.5 inch height of the top guide and thus alignment of the core is assured and insertion of the control rods can be achieved.

- In the unlikely occurrence of a design basis accident, safe reactor shutdown will be achieved, and the short term and long term emergency core cooling requirements will be satisfied.

- In the very unlikely occurrence of a design basis accident concurrent with a safe shutdown earthquake (SSE), safe reactor shutdown can be achieved, and long and short term core cooling requirements can be satisfied.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other ComEd employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

If there are any questions concerning this matter, please contact this office.

Sincerely,

Peter L. Piet
Nuclear Licensing Administrator

Attachments: Attachment A - Safety Assessment of H2 and H3 Core Shroud Welds for Cycle 14 Operation of Dresden Unit 2

Attachment B - Safety Assessment of H2 and H3 Core Shroud Welds for Cycle 14 Operation of Quad Cities Unit 2

cc: J. B. Martin, Regional Administrator - RIII
R. M. Pulsipher, Project Manager - NRR
J. F. Stang, Project Manager - NRR
M. N. Leach, Senior Resident Inspector - Dresden
C. G. Miller, Senior Resident Inspector - Quad Cities
Office of Nuclear Facility Safety - IDNS