

From: Tam, Peter
Sent: Thursday, March 17, 2011 2:54 PM
To: mkscarpello@aep.com
Cc: Pascarelli, Robert; hletheridge@aep.com; 'jrwaters@aep.com'
Subject: D.C. Cook Unit 2 - Discussion of lateral k-factor used in the LBLOCA analysis (TAC ME5865)

Michael:

As I discussed with you yesterday, the NRC staff would like to discuss with you, outside the review scope of the large-break LOCA (LBLOCA) amendment that you have requested, the lateral k-factor values used in the LBLOCA analysis. To prepare you and others for such discussion, please find below the text addressing this issue in the current draft safety evaluation supporting the LBLOCA amendment.

The NRC staff does not agree with the licensee's conclusion regarding the D.C. Cook Unit 2 sensitivity study on the impact of the lateral k-factor values on PCT during downcomer boiling following an LBLOCA. In the study a zero value loss coefficient for the lateral K-factor, joining the downcomer azimuthal cells, produced a higher PCT compared to the case with the lateral K-factors included in the input. Since the lateral K-factor will impact mixing, limiting the amount of lateral flow between axial cells, boiling should increase in the downcomer, resulting in loss of downcomer head and an increase in PCT. Since this is a long-term effect, it is not clear why this behavior is not observed in the calculations. ECC bypass effects and sweep out occur very early in the event, which are no longer present during the longer term when the accumulators have emptied. Downcomer boiling after the accumulators empty is expected to have a more severe impact on PCT than the earlier loss of downcomer fluid due to ECCS bypass effects. Given these facts, these results remain in direct contrast to the NRC staff's experience and past analyses pertaining to downcomer boiling.

I will contact you when the staff is ready to hold the discussion. Thank you.

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