PMSTPCOL PEmails

From: Norato, Michael
Sent: Thursday, April 01, 2010 3:34 PM
To: STPCOL
Subject: FW: For comment: Draft STP 6.2 RAI

From: Makar, Gregory
Sent: Friday, March 26, 2010 7:16 AM
To: McKirgan, John; Norato, Michael
Subject: For comment: Draft STP 6.2 RAI

Mike, John,

Here for your comment is a draft follow-up RAI for STP on the 6.2 chemical effects. It incorporates comments from Matt Yoder (NRR). I copied Paul Klein, the lead NRR reviewer on PWR chemical effects, but I'm not sure if he is in today or if he plans to comment. This asks – in one RAI – for the correct aluminum analysis and everything else. The applicant agreed in the call on Tuesday to include exposed concrete. Although I raised the zinc issue in the call, asking for a detailed analysis of zinc and everything else at this time will be a surprise.

Mike and I were planning to discuss the situation in detail on Monday, and I agreed to make sure Mark Tonacci knows what's going on.

Thank you,
Greg

Draft RAI 06.02.02-11 Supplement 2

The staff reviewed Supplemental response #2 to RAI 06.02.02-11 and determined the response is not complete. The aluminum corrosion calculations and solubility data used to analyze chemical effects were based on boron-containing solutions. These analysis tools do not apply directly to boron-free BWR coolant. In addition, the analysis did not include all relevant chemical debris sources. Therefore, the staff requests the following information:

- Analysis of aluminum chemical effects using corrosion and solubility data applicable to the post-LOCA ECCS fluid at STP 3&4.
- If the pH is expected to vary with time during the postulated 30-day post-LOCA period, provide an analysis of the chemical effects based on the predicted transient or explain how your approach is bounding. (For example, addition of sodium pentaborate from the standby liquid control system would increase pH over some time period.)
- Discuss your plans to address chemical effects not considered in the initial analysis, such as:
  - Constituents dissolved from concrete in the coatings zone of influence (ZOI), since the NRC coatings guidance assumes removal of the coating within the ZOI. Concrete dissolution generates elements of interest to chemical precipitates, including some containing aluminum (e.g., sodium aluminum silicate).

- Zinc, which was corroded at a low rate in testing related to PWRs but would be expected to corrode at higher rates in neutral and acidic solutions. The potential increase in zinc particles, corrosion products, and dissolved zinc could contribute to other chemical precipitates.
- Any other material present in containment (steel, for example) that would be exposed to the post-LOCA fluid and has not been addressed by an integrated chemical effects analysis for the ABWR environment.

For these chemical effects, include a discussion of how the analyses are based on bounding assumptions, dissolution rates, and solubility data.

- If your analysis predicts the formation of chemical debris, discuss your plans for addressing the impact of this debris on the ECCS strainers and fuel assemblies (e.g., strainer testing or a simplified approach based on clean screen area).

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Sent Date: 4/1/2010 3:34:06 PM
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From: Norato, Michael

Created By: Michael.Norato@nrc.gov

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"STPCOL" <STP.COL@nrc.gov>
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