HLWYM HEmails

From: Wesley Patrick
Sent: Monday, September 25, 2006 8:39 AM
To: James Winterle
Cc: Budhi Sagar; Sitakanta Mohanty; Asadul Chowdhury; Gordon Wittmeyer
Subject: RE: Drip Shield Drawings
Attachments: Drip Shield Drawings (18.1 KB)

Jim et al.,

Your recent Summary of Issues Related to Degraded Drift Processes in the TPA Version 5.1 Code is helpful in focusing attention on this highly important and controversial topic. Discussions Budhi and I had in Rockville last week highlight the level of concern at NRC, both with the technical subject and the impression that no substantive progress is being made on a schedule consistent with being ready for LA review. Even readiness for pre-licensing interactions is questioned by some, including me.

No one else has weighed in yet, so I provide the following thoughts to get the discussion going again. Please consider these as we go forward.

1. The third paragraph of your Background section suggests the kind of event tree approach we discussed when we last met on this subject. We floated this notion with McCartin last week; he was intrigued and thought it had merit.

2. As you and our rock mechanics colleagues know, I do not agree with the assessment that it is "prudent and reasonably realistic to assume nearly all of drifts will collapse," and by implication do so within 1,000 years (your Item 1). An alternative approach for Item 1 would be to do what you suggest regarding Items 3 and 4. Namely, because the DOE model says "0" and the
CNWRA model says "1.0," assume a uniform distribution between 0-1.0. I believe broader and more critical thinking could produce a better technical basis than this or for what is currently being done, TPA uses this approach in other areas.

3. A similar approach could be used for drip shield failures addressed in your Item 2. Again, one could invoke similar arguments for a 0-1.0 uniform distribution.

4. It seems to me that there are sufficient data to provide a better technical basis than is suggested in your Item 3. We know a lot about fracturing distributions, about which families of fractures tend to transport water, about what gross percentage of fractures transport water, etc. These data need to be considered in addressing the probability of water to enter WPs. In addition, Item 3 should also address the fact that the precursor event for DS failure is massive rockfall onto the DS. Under this condition, water is no longer moving directly from a fracture or fractures through a DS-DS gap. Rather, any water entering the failed drift has to migrate through a rubble pile to get to the DS and from there through a separation to the WP and from there to a crack in the WP. Although some of these factors are addressed in your Item 4, my point here is that if one concedes the current rock mechanics view of p=1.0 for massive/total drift collapse, there is p=0 for the conceptual model that is described in Item 3. As a minimum, the various elements of these models MUST be internally consistent.

5. Your Item 5 indicates that UZ2 does not anticipate progressing to where water movement through the rubble pile would be addressed in TPA 5.1. In my view, this approach misses one of the greatest opportunities to significantly affect the realism of the PA and the resulting investigation of items important to waste isolation.

6. I concur in your Item 6, which concludes not much should be expected from refining seepage water chemistry estimates.

7. Based on the foregoing, I do not agree that focusing solely on your Items 3 and 4 is appropriate. In addition to the foregoing, we should realize that the approach suggested for 3 and 4 is pretty much an arbitrary assignment of probability ranges; the technical basis does not appear to be there to give confidence in the results.

Please arrange for a meeting involving the appropriate folks at CNWRA to discuss this, prior to expanding discussions to include NRC. The sooner this done the better, in my view.

Thanks in advance.

Wes.

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