

HLWYM HEmails

From: John Bradbury
Sent: Tuesday, March 04, 2008 10:09 AM
To: LSNReviews
Subject: Fwd: Comments on SDS 3.01 Response
Attachments: TEXT.htm

>>> John Bradbury 12/19/2007 4:00 PM >>>

Hakan: I have a few comments. I agree with the comment about the on flow lateral boundaries. Salve, 2005 suggests a lateral component of gravity driven flow is observed. The assumption that permeability is isotropic is questionable since Salve suggests most lateral flow is dictated by the geometry of the fracture network. The point made by Jack that the distribution of flow when ponding occurs can be significantly different from what is anticipated in the repository seems reasonable.

I agree with your comment on the added enhancement factor takes away from the simplicity of the AFM and thus makes the conceptual model less robust, more uncertain. If DOE thinks a factor of 45 is appropriate for enhancing the effective diffusion coefficient, I'd like to see how that impacts the original water distribution used to calibrate the AFM (Liu et al 1998).

Finally, I can imagine that DOE will end up using sensitivity analyses to show the effect of matrix diffusion on performance. This was the way they did it in the SZ. There, they showed the effect as a function of fracture spacing.

The effect when the fracture spacing was 21m was close to that when the spacing was infinite. With that demonstration, the NRC considered the SZ matrix diffusion concern closed.

I note DOE has related the AFM to fractal considerations. The use of fractals is meant to describe the self similarity of the system on different scales.

DOE claims there are countless fractures on smaller scales which affect matrix diffusion. Once they have convinced the reader of this relationship, it seems antithetical to then claim that matrix diffusion is scale dependent.

I see this as the 2 arguments cancelling each other out, and I am left with nada.

John

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From: John Bradbury

Created By: John.Bradbury@nrc.gov

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"LSNReviews" <LSN.Reviews@nrc.gov>
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MESSAGE	1819	3/4/2008 10:10:04 AM
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