HLWYM HEmails

From: Miriam Juckett
Sent: Monday, February 25, 2008 1:10 PM
To: James Myers
Subject: RE: More ENG3 Review Strategy Conference Call

Jim, can you check over this for me? I'm not very comfortable with my latter answers, and would appreciate your input. Actually, input on any of them would be great- I don't think I'm yet as familiar with all of these as you are. Working on it! ☺
If you're comfortable with my answers, you can take this note off and forward it on.
Thanks
M

Topic 2 input:

1) What FEP(s) for each topic is (are) most important to estimating performance?

2.1.09.01.0A Chemical characteristics of water in drifts

2) What are the significant uncertainties for the FEPs significant to performance?

- Chemical characteristics of the water re-entering the drifts will be affected by interactions with materials, dissolution of precipitates in the host rock, and interaction with volatiles.
- Potential to change nitrate to chloride ratio in water and dusts with heat and other influences (microbial behavior, etc.)
- If using binning approach, are waters used adequate to describe the scenario?

3) What FEP(s) has DOE excluded that might be expected to be controversial?

2.1.10.01.0A (microbial activity in engineered barrier system) shows some potential for being controversial, and backfill related FEPs may become important if backfill is used.

4) What aspect(s)/FEP(s) of each topic/abstraction has (have) the strongest technical basis?

Potentially strong technical basis for redox calculations and effects of repository design.

5) What aspect (s)/FEP(s) of each topic/abstraction has (have) the weakest technical basis?

Potentially weak technical basis on selection of samples for determination of chemistry of waters. Significant numbers of samples were left out in creation of the "database" of samples.

From: Scott Painter [mailto:spainter@cnwra.swri.edu]
Sent: Friday, February 22, 2008 11:19 AM
To: jmyers@cnwra.swri.edu; 'Hakan Basagaoglu'; 'Miriam Juckett'
Cc: 'David Brooks'; 'Christopher Markley'
Subject: RE: More ENG3 Review Strategy Conference Call

All:

Here are my thoughts on 5 of the 7 questions. This is still at the "brainstorming" phase, but I think that is what we need now.

Scott

(1) Significant FEP:

2.2.08.12.0A. Chemistry of water flowing into drifts.

(2) Significant Uncertainties:

Repository induced thermal-chemical effects

a) Water entering drifts in the post-thermal pulse period will have traveled through rock that experienced above boiling conditions. Precipitates forming in the thermal pulse have the potential to alter chemistry of water.
b) Water will be traveling up the temperature gradient as it approaches the drift. The increasing temperature will alter chemistry of water. This is difficult to model because of role of CO_2, which will partition between gas and dissolved phase and is mobile in the gas phase. The increased temperature will also change the rates for rock-water interaction. A good model for the dominant rock-water interaction is needed to modeling this effect.

(3) Controversial Excluded FEPS:

1.2.06.00.0A Hydrothermal activity: this FEP has been the subject of some controversy in the past.
2.1.09.12.0A Rind formation: this one also has potential for controversy.

(4) Strongest basis:

Water chemistry in ambient conditions. Feldspar dissolution as the dominant rock-water interaction in ambient conditions. (My preliminary impressions. Geochemists need to weigh in on these)

(5) Weakest basis:

Abstraction is based on 1-D liquid transport. CO_2 movement in gas phase is neglected. Possible effects due to persistent thermal-induced rock alteration are neglected. Model validation needs careful attention.

-----Original Message-----
From: Jim Myers [mailto:jmyers@cnwra.swri.edu]
Sent: Thursday, February 21, 2008 9:19 AM
To: Hakan Basagaoglu; 'Miriam Juckett'; Scott Painter
Cc: 'David Brooks'; Christopher Markley
Subject: More ENG3 Review Strategy Conference Call

All,

Time permitting, we would also like to discuss the following seven "Tim McCartin" questions (Section B1.0 General Approach). I think I've mentioned this to the topic leads?!

1) What FEP(s) for each topic is (are) most important to estimating performance?

2) What are the significant uncertainties for the FEPs significant to performance?

3) What FEP(s) has DOE excluded that might be expected to be controversial?

4) What aspect(s)/FEP(s) of each topic/abstraction has (have) the strongest technical basis?

5) What aspect (s)/FEP(s) of each topic/abstraction has (have) the weakest technical basis?

6) What information (related to significant FEPs) are you expecting from other review teams (See Table 1A)?

7) What information (related to significant FEPs) are you providing to other (See Table 1A)?

Just a reminder. This is intended to be a discussion. No one is expected to have developed a final position on any of the FEPs.

Thanks,
Jim

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Created By: mjuckett@cnwra.swri.edu

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