HLWYM HEmails

From: Chandrika Manepally
Sent: Wednesday, August 29, 2007 3:17 PM
To: Randall Fedors
Subject: RE: DD Effects on Temperature

Randy
The way I'm seeing it is that they are using the instantaneous degradation case results in higher temperatures for all seismic events may not be conservative. The effectiveness of the vaporization barrier is much longer for the instantaneous case. So, they have to justify their assumption of using a fully-collapsed drift in MSTHM.

Now the question of "so what", I agree that this assumption is ok if the seismic event occurs at later time steps (t> ~4000 years). However, looking at the METRA curves, (a) the duration of above boiling conditions; and (b) time period for Environment II (aggressive chemistry) are quite different for the instantaneous vs. a gradual degradation (that accounts for a partially-filled drift). So, doesn't this mean that DOE approach is "non-conservative"?

Looking the "Abstraction for Drift Seepage AMR", they picked this 11 m drift as it is supposed to be the "worst-case" scenario for seepage. But it is the "best-case" as far as vaporization barrier is concerned...

1. Do we know for sure that the drift-collapsed MSTH results are applied for all seismic events (how is a seismic event defined, 10-4 probability?)

> I think it is for all seismic events. I made this conclusion based on discussion given in MSTHM rev 3 Section 6.3.7 and what Buscheck mentioned during App 7 meeting. Hardin also concurred.

2. Where is the temperature threshold of 100 C for seepage checked for the collapsed drift scenario; at the actual degraded drift ceiling (11-m diameter position), or the hypothetical original drift ceiling (5.5-m position)?
> I need to check this... will get back to you shortly. I kind of remembered that this question may have come up during the App 7 meeting...

-Chandrika

-----Original Message-----
From: Randall Fedors [mailto:rwf@nrc.gov]
Sent: Wednesday, August 29, 2007 12:47 PM
To: Chandrika Manepally
Subject: Re: DD Effects on Temperature

Some rambling, though probably not helpful comments to consider:

Use of low-probability seismic MSTHM results for all seismic events in TSPA can lead to how much error? 100 C at some specific time seems large. But eventually the WP will go through the correct temperature regime; plus the duration may be longer in the localized corrosion window (thus possibly conservative). Shifting the environments a few thousand years does not seem important, unless something else is happening that won't happen later. So what that their model is not realistic, and that they're getting T and RH wrong at any particular time - are these time shifts in regimes important? Can we envision anything that would cause the DOE abstraction to be non-conservative?

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probability?)

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--Randy

>>> Chandrika Manepally <cmanepally@cnwra.swri.edu> 08/29/07 11:38 AM
>>>
Randy
Take a look at the attachment and let me know if you think this question needs to be included in the App 7. Based on my discussions with Luis, DOE says that only a very strong seismic event will cause a complete collapse (i.e., drift fills up completely) and it does not happen very often. They use this assumption in the calculation of the static rubble load. This is inconsistent with the assumption in MSTHM.

Let me know what you think...

-Chandrika

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